# The Builder.

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### *The Competitive Designs for the Paris Exhibition of* 1900.

NO fewer than 112 sets of designs have been submitted in the competition for the new buildings to be erected for the great International Exhibition with which the French propose to celebrate, in the year 1900, the commencement of the twentieth century. The stress of the competition has eliminated a large proportion of the 664 architects who applied for leave to compete, and a considerable number of designs have been put on one side as incomplete. The drawings are at present being exhibited in the upper galleries of the Palais de l'Industrie, and amongst the 112 a very large number are well worthy of careful consideration by the jury. Amongst so large a number of designs there are, of course, many to be found which, from lack of ability or of time, are hopelessly out of the running, but comparatively the proportion is smaller than one would expect in an English competition.

The site proposed for the Exhibition embraces not only that of the 1889 show in the Champ de Mars and the Trocadéro, but also an almost equal area in the Esplanade des Invalides, with the Palais de l'Industrie and the ground around it, thus extending from the Hôtel des Invalides to the Champs Elysées. The quays on either side of the Seine, between these locations, were also placed at the disposal of the competitors, who were also left free to retain or adapt such of the existing buildings as they might deem fit.

The Trocadéro building is universally retained, a few only of the competitors venturing even to modify its exterior. Very varied views have been taken by the competitors of the desirability of keeping the remaining buildings. The fact that the architects of the 1889 buildings are members of the jury might have been expected to predispose the competitors to a considerable retention of the old buildings, but it is worthy of notice that the majority of the really able designs make a more or less clean sweep of the older structures, the Trocadéro excepted, as we have already noted,

There can be no question that for ensuring success to the Exhibition any cheeseparing economy in the retention of the old buildings will be fatal, even should the saving be as much as M. Formigé estimates, viz., thirty-two million francs. The only buildings of the 1889 Exhibition which we should care to see retained are the twin Palais des Arts, which are well designed and suitable for their purpose, whilst their comparative subordination would not interfere with a novel aspect being given to the new show by the erection of dominant structures possessing fresh interest. We are somewhat surprised to see that a large number of the competitors propose to retain the Palais de l'Industrie, although, indeed, several propose to dress it in new clothes by adding more or less of a new external skin. It will need more than decoration to make it serviceable, however, as the rain pours through the glass roof in all directions, much to the disgust of the exhibitors in the cycle show which now occupies the central area. The very galleries in which the competition drawings are on view are scarcely protected by awnings under all the glass. Very few of the designs which include any large retention of existing buildings escape from producing the impression that their authors kept the old work because they lacked either the time or the ability to design new.

The evil influence on the minds of the competitors of the financial success of the Eiffel Tower has been considerable in determining their projects. Few, comparatively, have ventured to suggest its demolition. Many have proposed addition, alteration, modification, or incorporation with new work, whilst others again have been spurred on to propose new sensational features which might make a specious bid for the francs of the *gobemouches*, but would not merely excite, as did the Eiffel, the amazement of all artists and men of taste, but bring upon Paris the derision of the civilised world, and for ever depose her from her artistic supremacy. Paris, in her Exhibition, may be allowed some freedom and some gaiety; she may be as *chic* as she pleases, but civilisation will draw the line at the buffoonery of the circus in the celebration of the triumphs of civilisation, of peace, and of labour at the close of the nineteenth century.

Thus most of the designs which are deserving of attention by the jury may be classed in three categories—the economical, the straightforward exhibition, and the sensational show—and it will be interesting to hear which of the three principles the jury will choose in determining their selection of a design.

As regards architectural treatment, in almost every case the designs of the last Exhibition buildings furnish the keynote. Some are more, some less, fantastic and rococo, but the general tone is maintained through all, and may be accepted as sufficiently suitable for a French exhibition. The drawings are almost universally excellently prepared and brilliantly coloured; some have many sheets and give details, others have few and give only general dispositions.

In the design under motto "La Presse Française" the Eiffel Tower and the Galerie des Machines are retained, as is also the Palais de l'Industrie, with some slight modifications, and a new series of buildings surrounds the remainder of the Champ de Mars. The novelty of the design is a "Mundusorama" on a platform across the Seine between the Palais de l'Industrie and the Place des Invalides. In this "Mundusorama" the visitor will travel by a light railway through a panorama of the world, 1,800 mètres long, round the world in two hours.

M. Louis Meissonnier proposes to cover the Seine entirely between the limits of the extent of the quays comprised in the scheme of the site. He proposes to remove the Eiffel Tower, but to retain the twin Palais des Arts and the Palais de l'Industrie. A further sensation is the introduction of immense domes to form lanterns at night.

The design by MM. Bernard and Cousin has a plan of suitable arrangement. The principal buildings are placed on the Champ de Mars, where of the 1889 Exhibition are retained the Eiffel Tower, the two Palais des Arts, and the Galerie des Machines. Between these are the new buildings, an immense glazed dome, octagonal in form, with avenues radiating from the centres of the sides and a series of five concentric galleries. The central domed area is dedicated to "Electricity," and the dome is constructed in a series of niches or

coffers, each with its powerful lamp and reflector. This, of course, is for "sensation," but does not prevent the arrangement of the galleries around, dedicated to "Various Industries," from being one of the best that can be devised for exhibition purposes. In this design the Esplanade des Invalides is devoted to Colonial exhibits arranged on either side of an avenue, with the Hôtel des Invalides at the end. The designs of the exterior follow the key of the 1889 Exhibition in style, and are shown by some well-coloured drawings.

M. Blavette retains but re-dresses the Palais de l'Industrie and the Palais des Arts, removes the Eiffel Tower, and covers the greater part of the Champ de Mars with a series of connected galleries. The Esplanade des Invalides is occupied by a large galleried hall for furniture and decoration, and an elliptical building for scientific and literary material, which, together, are balanced on the other side of the Seine by the Palais de l'Industrie and a second elliptical building. This design is essentially one for an exhibition, and is entirely free from all sensational attractions.

The design hung next, that by M. Alfred Leclerc, is a complete antithesis. Sensation at any cost has been the author's guiding principle. The Eiffel Tower is eclipsed by two enormous elephants, with lofty Indian pagodas on their backs and their trunks lifted in arch-form, in which a tramway is to run. Then there is an enormous triumphal arch, the top of which is about two-thirds the height of the Eiffel Tower.

MM. Larche and Nachon show a completely new arrangement, retaining only the Palais de l'Industrie, with some modifications. A circular-domed building occupies the centre of the Champ de Mars, and a series of galleries run round the sides. A new building for works of art is placed on the Esplanade des Invalides, the old Palais de l'Industrie being devoted to the material of science and art. For sensation, there is a triumphal arch, symbolising and dedicated to electricity, on a new bridge of communication with the Invalides. This is but a tribute to the show element in a design which is, on the whole, businesslike.

The design by M. Gaston de Montgolfier includes some features evidently intended to mark the engineering skill of the nineteenth century. The achievement of the Eiffel Tower, 300 mètres high, is to be paralleled by girders 300 mètres in span over a large hall, which the author makes part of his plan and places at the rear of the Champ de Mars. These immense span-girders are merely *tours de force*, as the length of the hall is but a fraction of its span, and the roofing might be far more easily constructed. It is scarcely worth while to make girders of this length merely to show that it can be done. A further engineering exploit proposed is the construction of an elevated railway at the level of the first platform of the Eiffel Tower, which is retained. A lake is proposed in the Trocadéro Garden, whereon a little mild boating in Venetian gondolas may be enjoyed by holiday-makers. Beyond these somewhat clap-trap attractions the plan is a fair one, the bulk of the Exhibition being accommodated in a large block of buildings on the Champ de Mars; having a Salle des Conferences in front towards the Seine and galleries running the length of the Champ de Mars. Smaller isolated buildings are proposed on the Esplanade des Invalides, whilst the Palais de l'Industrie is retained.

M. Amadée Sebillot's design may be mentioned as an example of the extravagant notions which rather than skilful design appear to some of the competitors as legitimate attraction for a World's Fair. This gentleman out-Herods the Eiffel by suggesting beneath it a shaft or well, with galleries at intervals, by which visitors may explore, to a limited extent, the crust of the earth, and as the tower is 300 mètres high, the well is proposed to be 3,000 mètres deep. A flying ship is also suggested, whilst the ascent of the various stages of the Eiffel is to be made by captive balloons and aeroplanes.

After such a stupendous effort of the imagination, the author's genius could not, of course, be expected to conceive a new plan for the Exhibition buildings, so the old ones are retained.

M. Marcellin is another competitor whose ideas have evidently been directed by the Chicago show towards aquatic *fêtes* and gondolas, as he proposes to convert the greater part of the Champ de Mars, as well as the Trocadéro Gardens, into a big lake with the Eiffel standing in the middle. The old buildings are, of course, made to do duty again, the novelty being afforded by the water show. Captain Boyton would doubtless be only too pleased to assist this gentleman.

M. Salleyquier's fancy runs in the direction of big bridges, for he proposes one of 14 hectares (about 35 acres), and as an alternative another of 9 hectares, spanning from the Champ de Mars to the Trocadéro, and bearing exhibition buildings.

Following the drawings in the order in which they are hung it is refreshing, after noting the eccentricities we have mentioned, to examine so admirable a design as that of M. Esquié. In general disposition this is one of the best plans exhibited. A clean sweep is made of all the old buildings except the Trocadéro, the Champ de Mars is almost entirely covered with an immense glass palace, the centre of which rises in hypostyle fashion with three large glass domes of a somewhat peculiar form based upon a four centred arch, suggesting a reminiscence of the great trusses of the old Galerie des Machines. This erection is intended for the reception of machinery and manufactures, special emphasis being given at the front portion of the building to the palace of electricity, which is marked by a further dome in the centre of the principal façade, due effect to which is given by the setting back of the buildings from the Seine, the space between which and the entrance is intended to be occupied by gardens and fountains. The details of this main building are rococo to the last degree and in some instances coarse in scale. On the Esplanade des Invalides the author proposes a grand Palais des Beaux-Arts, which is treated with more restraint and dignity, as befits its purpose. The portion of the site towards the Champs Elysées, now partly occupied by the Palais de l'Industrie, is devoted to a group of small pavilions allotted to Colonial exhibitions, whilst on the left bank of the Seine are to be found the buildings devoted to food and agriculture, and on the right bank those for foreign countries.

Another good design is that by MM. Walwein and Lefebvre. These gentlemen also propose a huge glass palace on the Champ de Mars for the main exhibition. This is arranged on what we may term the radiating principle; a central avenue has on either side two semi-circular halls, concentric with which are three galleries on either side. The remainder of the plan is made up of enclosing long galleries back and front, which stretch across the whole width of the Champ de Mars, and in front two flanking galleries project on either side. In detail this is, architecturally, one of the best designs exhibited, and the approach to this main building, with the projecting wings on either side, and the entrance marked by a well-designed façade and dome is particularly pleasing. An alternative design for the dome over the central entrance, shown to a larger scale, is even better than the original, and is one of the best pieces of architectural design in the whole collection. The site of the Eiffel Tower is left unappropriated, so that the white elephant may be either retained or removed, as financial considerations may determine. In this design the Palais de l'Industrie is retained, whilst the Esplanade des Invalides is devoted to minor buildings.

A remarkable *penchant* for domes is one of the noticeable characteristics amongst the competitors as a whole, and a striking instance of this is the design of M. André, who proposes an immense circular dome, some 850 ft. in diameter, as the central feature in his building on the Champ de Mars. Surrounding this on three sides, but distinct from it, are rectangular galleries, and on the fourth side, facing the Seine, the grand entrance is formed by an open semi-dome, with nine tunnel-like galleries radiating from it. These look better on plan than in the perspective, though even on plan their *raison d'être* is somewhat diminished by the fact that six of the nine lead nowhere. On the Esplanade des Invalides this competitor has a group of galleries with two smaller domes. The Palais de l'Industrie is retained.

The design of M. Hermant also revels in domes, and is chiefly remarkable for a finely-designed Salle des Fêtes, with a large dome and carried on a bridge over the Seine. A great glass palace on the Champ de Mars incorporates the Galerie des Machines, and has a central dome and two smaller ones. A large glass Palais des Beaux-Arts occupies the Esplanade des Invalides, whilst the Eiffel Tower and the Palais de l'Industrie are retained.

MM. Bontron and Schoettkopf are amongst those competitors who have endeavoured to improve the Eiffel Tower. As the attempt in this case consists of a glorification with rococo ornament, an organ on the second stage, bells above, and a clock above that again, there is little fear that the jury will be so lacking in taste as to permit of the idea becoming an actuality.

M. Baudot has relied on cement as a means of reducing cost, but in producing a design which he considers especially suited to the material has evolved some very ugly forms. In the centre of the Champ de Mars he proposes a lofty domed structure of peculiar shape intended as a Salle des Fêtes, and decorated in bizarre fashion with coloured glass, faïence and electric light. A clear space is arranged around this, and glass galleries follow somewhat the disposition of the 1889 buildings. The Palais de l'Industrie is to be retained.

The design of M. Paul Bonnier has a good plan, and makes a clean sweep of the old buildings except the Trocadéro. On the Champ de Mars an immense railway station roof covers the Central Machine Gallery, and in galleries on either side are located Manufactures. Projecting wings from the main block flank the open space towards the Seine, and an ornamental lake takes the place of the Eiffel Tower. A series of colonnades is excellently disposed in the Trocadéro garden, leading up with good effect on the rising ground to the Trocadéro. The author's careful attention to scenic effect is further exemplified by the treatment of the further part of the site. Entering from the Champs Elysées a grand building, intended for fine arts, with two projecting wings and an immense circular arched opening frames the vista and serves as an approach to the Esplanade des Invalides, at the further end of which is the Salle des Fêtes, whilst at the side are domed galleries for the materials and products of the arts and sciences. On the right bank of the Seine are located the buildings for agriculture, and on the left those for foreign nations, horticulture, and food. The architectural detail is not extravagant, but sufficiently gay in character.

M. Formigé not unnaturally advocates the retention of the existing structures, even the Eiffel Tower, although he a little disingenuously omits this last from his perspective. He proposes to continue the twin Palais des Arts with a circular sweep to a new Salle des Fêtes, in front of and masking the Galerie des Machines. The glorification of electricity is to be effected by a Palais erected on a bridge leading from the Champs Elysées to the Esplanade des Invalides, on which are a range of new buildings.

M. Chancel's design is one of the

"incroyables." The Eiffel is to be demolished to the first platform, and dressed up in new clothes, with a great ball on the top, representing the celestial globe, and grand night effects are proposed from this Palais de Feu. Another sensation is an enormous winding "chemin de fer aerien," arranged dome-fashion on a square-arched base spanning the Seine, between the Champ de Mars and the Trocadero Garden.

MM. Brunnarius and Pellerin suggest another sensation in the form of hanging gardens, leading from the first platform of the Eiffel Tower to the Trocadero.

MM. Bauer and Boizot have kept all the old buildings, and have taken considerable pains to disguise, as far as possible, the old work, and if, for motives of economy, the retention of the former structures be taken as a starting-point, from that starting-point these gentlemen may be regarded as being more successful than any other competitors. A new central block in the Champ de Mars is their most important new building. Three ideas for altering the Palais de l'Industrie are shown to fit it for the new main entrance of the Exhibition, and from this a new boulevard is cut straight through to about the centre of the Champ de Mars.

M. Ballu is another competitor who makes heroic attempts to retain, with modifications, the older structures, even the Eiffel Tower being kept and dressed up in new clothes. On the Champ de Mars, and between the Palais des Arts and the Galerie des Machines, the chief novelty is introduced in the form of an immense square-domed structure, half the height of the Eiffel Tower, with galleries around. The Esplanade des Invalides receives a large glass palace, and the Champs Elysées has the old Palais de l'Industrie modified, and with the addition of a semi-circular Salle des Fêtes.

The design of M. Galeron need only be mentioned as a singular instance of perversity, inasmuch as he covers the Seine entirely within the limits of the Exhibition, and transforms the whole of the Champ de Mars and the Trocadéro Garden into a lake, save for the old buildings, which are retained.

A good plan, but accompanied by insufficient drawings to show details of the design, is submitted by M. Sortais, in which the Eiffel Tower and the Palais de l'Industrie are retained but modified.

M. Girault sends a design which would make a charming out-door lounge in fine weather for those who did not wish to see the things exhibited. It is, indeed, rather a study in formal gardening—the Champ de Mars, for instance, being laid out as a central garden, with six detached pavilions around, and a new entrance to the Galerie des Machines, which is retained. The Eiffel Tower is also kept, and the tower part enclosed to form a grand entrance-porch to the garden. The Palais de l'Industrie is preserved, but with a large domed building added at the rear for a "Musée rétrospectif des Arts." The Esplanade des Invalides is treated with smaller buildings on each side forming an avenue to the Invalides.

The design of M. Mewes is one of those which proposes the entire demolition of the existing buildings except the Trocadéro. Like the last, the Esplanade des Invalides is treated simply as an approach to the Invalides. The Champs Elysées is arranged as a circular open space with a semi-circular building for Fine Arts. The chief exhibition building is an immense structure on the Champ de Mars with a semi-circular approach. This design has much to recommend it, but is not quite in the front rank.

MM. Thomas and de Tavernier keep the Eiffel Tower, but re-dress it and construct a Salle des Fêtes beneath it. They re-clothe the Palais des Arts in extravagant detail, and put a new skin around the Palais de l'Industrie. A glass palace occupies the Esplanade des Invalides, but the principal attraction is a bridge over the Seine between the Trocadéro and the Eiffel Tower of wonderful design. Indeed, the whole scheme is characterised by extravagant and bizarre detail, and suggests that the authors had sought to stimulate their invention by a course of study of the "Arabian Nights."

The design of M. Defrasse is moderate in conception and workable in plan. All the old buildings are cleared away except the Galerie des Machines, which, however, is masked by an assemblage of somewhat low glass sheds over the Champ de Mars, with a good façade towards the Trocadéro. The grand entrance is placed at the Champs Elysées, and an avenue of minor buildings forms an avenue of which the Invalides terminates the vista.

A fair plan, though not quite one of the best, with the main exhibition covering the Champ de Mars, is submitted by M. Farcy. The Palais de l'Industrie is kept and devoted to the Fine Arts.

M. Pille is one of those afflicted with Eiffelism, and makes the tower the centre of his composition, dressing it up in an extravagant fashion.

M. Bossis also is in the same category. He takes off the top of the Eiffel, puts a great globe upon it, and adorns the lower part.

MM. Saladin and de Sevelingen keep the Eiffel Tower, and arrange a series of galleries around and beneath it. A large palace with central square dome is placed at the rear of the Champ de Mars. The Champs Elysées and Esplanade des Invalides are here again treated in landscape gardening fashion, with narrow long buildings well disposed for scenic effect.

M. Debrie submits another the of mad-cap schemes, the chief feature of which is a subterranean hall of an area of 138,700 square mètres.

M. Courtois-Suffit affords another instance of frantic striving after sensation. A grand bridge over the Seine from the Champs Elysées to the Esplanade des Invalides bears a Palais des Fêtes, which at night is to be lighted up by Bengal fires, electric light, and so forth; circular colonnades are arranged with good scenic effect at each end. A group of buildings surrounds the Champ de Mars, which is laid out as a garden, whilst the Galerie des Machines is preserved, and the Eiffel is cut down and surmounted by a globe. A horrible triumphal arch in iron forms the principal entrance from the Place de la Concorde.

M. Robida makes a suggestion which might be incorporated in the selected design and would form an attractive as well as educational element of the Exhibition. He proposes a series of illustrations of old Paris, reproductions of tit-bits of Mediæval France, and a representation of the architectural wonders of Asia. These are well worked out, and amply justify the idea of the author.

MM. Isabey, Toché, and Valentin Smith propose to keep the Eiffel Tower, and, like another competitor already alluded to, show hanging-gardens, extending from the first platform of the tower to the Trocadéro Garden. On the Champ de Mars a large glass palace is placed with a Salle des Fêtes in the centre and galleries around. The Galerie des Machines is kept and slightly ornamented. On the Esplanade des Invalides is a palace for the glorification of electricity, and leading to it smaller galleries on each side.

The chief feature of M. Marcel's design is the alteration of the Eiffel tower to a temple of light surmounted by a gigantic figure of France, obviously inspired by the New York statue of Liberty. He keeps the Palais de l'Industrie but modifies it and gives it a new glass roof and dome. The Palais des Arts are also retained but modified and at the rear of the Champ de Mars elliptical-planned galleries are shown. Smaller buildings occupy the Esplanade des Invalides.

Thus it may be seen from our description of the most prominent designs that the competitors may be, almost without exception, classed in one of three groups—first, those who propose the complete removal of the old buildings save the Trocadéro, and in some instances, the Palais de l'Industrie; second, the economists, who propose to retain the former structures, modifying and masking them to a greater or lesser extent; and third, the sensationalists, who by more or less outrageous devices seek to obtain for the Exhibition a meretricious notoriety and attraction. The Eiffel Tower is the *bête noire* of the problem, and we think those are wisest who propose its entire demolition, in spite of the great cost, estimated, though it be, by M. Formigé at five and a half million francs including compensation to the concessionaires.

Very great interest is being taken by the Parisians in the exhibition of competition designs, many of the more attractive drawings being crowded round with visitors four or five deep, and we believe we are within the mark in estimating the number present at one time at between three and four thousand people.

We are pleased to note that public opinion seems rather to incline towards the first class into which we have divided competitors, and also that a very general abhorrence of the Eiffel Tower is manifested.

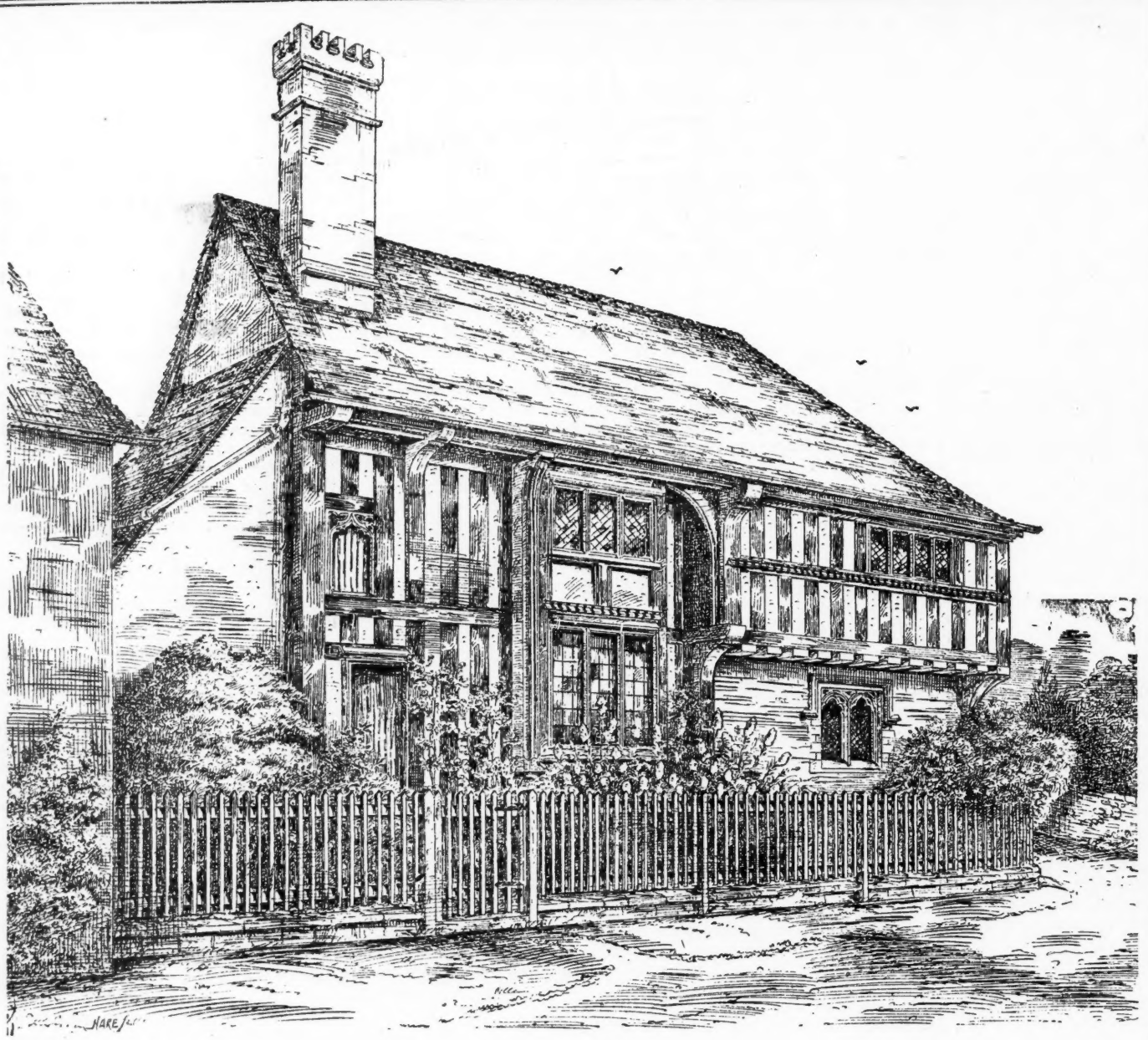
There are several designs which, if carried out, would do credit to Paris and to France, and many others have good points, some of which it is not impossible may be incorporated by the collaboration of their authors with the successful competitor.

## SOME OLD HOUSES AND FURNITURE.

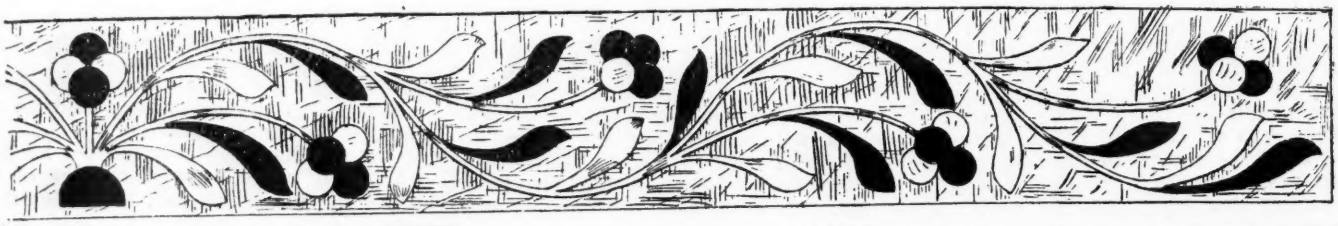
THE above rather comprehensive heading is suggested by the title of the book of illustrations of old work by Mr. W. B. Sanders,* which is neither a book on half-timber houses nor a book on ancient furniture, but a combination of illustrations of both classes of work. There is no particular reason for classifying these two branches of work together except that both the houses and the furniture are woodwork—at least as far as the most characteristic portion of the house constructions is concerned. The interest of the houses consists mainly in the manner in which plain pieces of timber are used in a picturesque form of construction, while the interest of the furniture consists mainly in its carved work and other decoration. Of the thirty plates in the book, however, only four illustrate houses, which is not sufficient to make a book of; we may take the title as an excuse for publishing these four drawings along with the rest of the set; and no doubt they add to the interest of the collection.

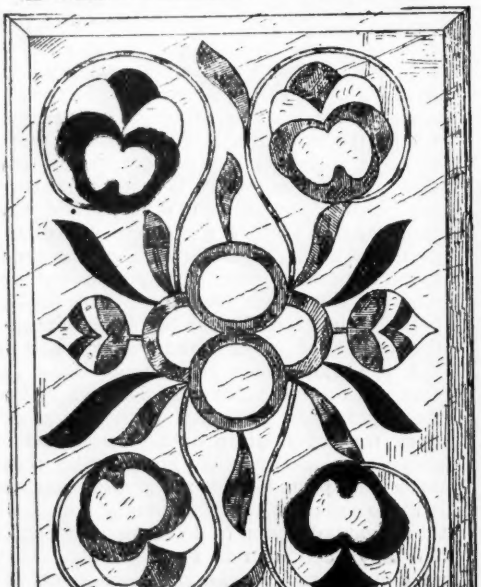
The four houses illustrated are all from Kent, and are all good examples of the pleasing effect which may be produced by the exhibition of simple and unostentatious timber construction. The "Old Cottages at Leeds" (a village in Kent) are an excellent example of this; there is no pattern-making in the timber-work; above and below it is simply a series of uprights, interrupted only where the windows intervene. The upper story is corbelled out to get more room above, the ends of the floor-timbers being run through and shown outside, and thus producing a slightly decorative effect in a perfectly natural manner. From an architectural point of view it may be questioned whether the house would not have looked better if the ground story had been of stone; the basement looks rather weak as it is. But the half-timber construction was the cheapest and was therefore adopted, just as the picturesque over-sailing of the upper story was adopted to obtain larger rooms above. In the case of houses like these there can probably be no greater mistake than to suppose that the people who built them wanted them to look picturesque, or had any such idea in their minds. They were simply making the most economical use

* "Half-timbered Houses and Carved Oak Furniture o the Sixteenth and Seventeenth Centuries." By William Bliss Sanders. With thirty illustrations photo-lithographed from the original sketches of the author. London: Bernard Quaritch. 1894.



*Old House at Leeds, Kent.*





SOME: EXAMPLES:
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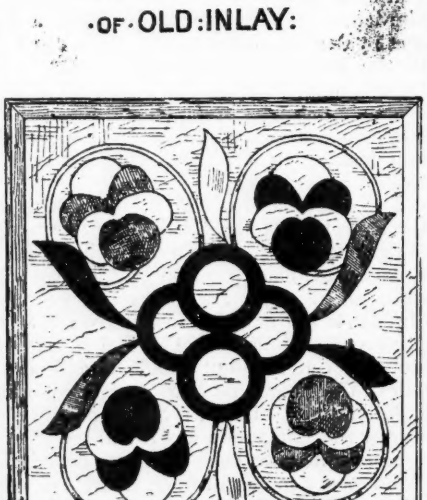

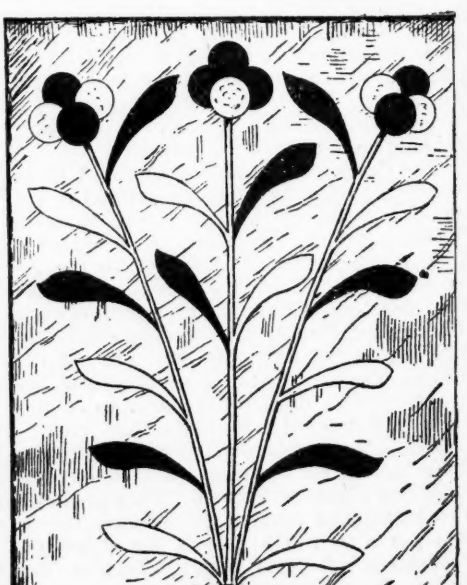

of their materials and of the ground they had to build on. In speaking of the old house at Pluckley, illustrated in Plate I., the author observes that the roof "is left plain to act as a counterfoil to the walls, which are chequered with timber work." We do not believe the men who built that house gave a thought to anything of the kind. They left the roof plain because covering it with plain tiles was the simplest way of doing it. This and many other such erections are picturesque, there is no doubt, but the picturesque element comes much more out of our own perceptions than out of any intention on the part of the original builders. And if they had deliberately aimed at picturesque contrast, they would very likely have missed their mark, and the buildings would not have the charm for us which they now have.

The house at Leeds, illustrated in Plate II. (of which, by the permission of the author, we give a reduced reproduction), shows a little more of conscious intention of producing a good architectural effect; the architect of it appreciated the value of a strongly-marked projecting cornice, at all events, and to give security to this both in appearance and in reality the upper portions of the uprights are formed as corbels. In other portions of this front there are touches of intentional architectural effect, though the treatment is simple enough on the whole. We are by no means implying that there may not be a considerable amount of successful calculated architectural effect realised in half-timber construction; we only deny that the simpler cottage buildings of this class, which are often among the most pleasing in a pictorial sense, were contrived with any such intention.

The illustrations of carved furniture, as already observed, come under a different heading, and are mostly distinctly ornamental work intended as such, though there are points of interest in the construction, as in the child's high chair shown in Plate XVIII., where the upper portion is no wider than is necessary to give room for a child to sit, but the legs are spread considerably so as to give a larger base and prevent any chance of the chair toppling over with a restless little occupant. This piece of pure common sense in design is what one would think ought to occur to everyone who made a child's high chair for sitting at table, yet where do we ever come across an example of it in the modern object of the same class? The period of work which is mostly illustrated in these drawings is the sixteenth and seventeenth centuries, and the author rightly calls attention to the interest which attaches to English furniture of about this time from its mingling of Renaissance forms with a certain amount of Gothic reminiscence. It might also be added that one cannot but be struck with the comparative clumsiness and coarseness of much of the ornament as compared with Italian work of the same period. Many people, including we fear Mr. Sanders, will think this a very unsympathetic remark to make, but we see no reason why admiration for old work should be cultivated at the expense of truth of critical perception; and the truth is that though there is a good deal of richness of effect in the work illustrated here, and that moreover it has the merit, for the most part, of being specially and obviously suitable for execution in wood, the details are very often coarse and commonplace, and look too much like Classic detail executed by people who only half understood it, or only sufficiently to make a somewhat rude reproduction of it. Moreover, the lines of what we may call the limbs of the furniture, the legs especially, are often somewhat stiff in form and elephantine in character. These very qualities no doubt give certain special character and interest to the work, but they do not alter the fact that for the most part it cannot be called refined work, either in design or execution. The panels of inlay work, of which we give a reduced reproduction, are an exception to this rule, and are exceedingly pleasing bits of design, besides being interesting as illustrating a method of ornament which until recent days has been much less used in England than in Italy. The long upper panel, and the oblong one on the right, are from an oak cabinet in a private house at St. Albans; the two other panels are from the tester of an oak bedstead in the possession of the author of the book. The size of the originals is not stated, nor is there any scale on the drawing.

Mr. Sanders refers, in the course of his remarks on the examples, to the question whether the "court cupboard" and the "livery cupboard" of the period in question were different names for the same article, or were distinct pieces of furniture. We should suppose that every probability was in favour of the latter conclusion, as different names are not generally given for no reason. The author states that he has made some investigation into the subject, and certainly considers that they were originally different articles for different objects, though they may in time have come to resemble each other a good deal. The distinction which he gives as the most probable and important is that the livery cupboard was intended to hold food, and was made therefore so as to ensure ventilation, while the court cupboard was intended for the safe keeping of glass and plate, and was therefore made to shut close. He supposes the livery cupboard to have been in its earliest form open, without doors, and in its later forms often made with pierced or open-railed doors; and this supposition would give a practical meaning to the design of the interesting example on Plate XV., of an oak cupboard with its doors filled in with open balusters. An illustration given in Plate XVII. shows, we are told, a "livery-cupboard" placed on the top of a "court-cupboard." This example (one of the best in the book in the artistic sense), is in a hotel at Tunbridge Wells, and it was long supposed that the whole was one piece of furniture. An examination, however, showed that they were entirely separate constructions. Some of the quotations from old deeds, which are cited by the author, appear to support his opinion as to the real function of the livery-cupboard.

We have only to add to these remarks that the drawings are admirable throughout, and the letterpress contains a great deal of information and suggestion in regard to the archæological side of the subject.

## NOTES.

DR. J. SIX, of Amsterdam, has recently published ("Jahrbuch d. K. D. Arch. Instituts, 1894," &c.), a hypothetical restoration of the central group of the east pediment of the Parthenon, which deserves the attention of English archæologists. The new restoration is based, as all restorations must be, on "Sauer's marks," but it differs from that proposed by Dr. Sauer himself. Dr. Sauer, it will be remembered, places no central figure in the apex of the pedimental triangle; he seats Zeus to the one side, balanced on the other by the standing, new-born Athene. This arrangement was never from the artistic point of view pleasing, for the eye has been trained by long tradition to expect a central figure, or at least some central object—like the olive-tree of the west pediment. Dr. Six places the seated Zeus exactly in the centre, and allows the figure of the standing Athene to be balanced by that of Hephaistos behind the throne of Zeus. Sauer's marks oblige the figure of Athene to be placed somewhat further from Zeus than is that of Hephaistos, and the gap so formed Dr. Six very skilfully fills with the figure of Nike floating toward Athene. It will be seen that he very closely follows the composition of the Madrid puteal. The restoration is an interesting one, for it has been made by a sculptor from actual living models, draped and posed in accordance with the Madrid puteal.

THE same number of the "Jahrbuch' which is referred to above contains the account of a paper read before the Archæological Society of Berlin by Herr Winnefeld, on some particulars in the plan of Hadrian's villa. The only ancient account of the arrangements of the villa ("Spartian Hadrian," cap. 26) states that certain portions of the grounds were called after the various noted places and buildings they were intended to imitate—*e.g.*, there was a Lyceum, an Academy, a Prytaneum, Canopus Temple, and even an Under-world. In only one instance, that of Canopus, has this statement been borne out by excavations. In one, and one portion only, of the villa grounds, a quantity of statues in Egyptian style made of blackish marble have come to light, and here the Canopus must have been. This portion of the villa cannot have been built before A.D. 134, the year of Hadrian's return from Egypt, it is, therefore, one of the latest parts of the whole building. To the discussion of its plan, given by Dr. Winnefeld, and the question how far it was a close imitation, how far merely a vague reminiscence of the actual Egyptian Canopus, the paper is devoted.

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THE Roman villa at Darenth, which was described in our last, still continues to reveal features of interest, and the excavators are opening out its enormous size day by day. It has been necessary to enlarge the area of the operations from 300 ft. square to 450 ft. square, and the lines of walls crossing and recrossing one another now occupy the larger portion of this area. The bath already mentioned has now been cleared entirely, and it proves to have been 38 ft. long by 9 ft. 10 in. wide, but at some later period of the occupation it was divided by a cross wall into two divisions. It is 4 ft. deep, and the walls are lined with a mortar coating formed of pounded brick. To the west, an elaborate range of chambers has been laid bare, of different axis to those to the east, and a third range to the south is now being uncovered, having the inclined axis. The principal find, however, is to the east, where an apartment, 10 ft. 6 in. by 9 ft., has been just discovered. It has a pavement all but perfect, and still supported on large flat bricks carried by piers formed of flue-tiles used for this purpose, thus forming a hypocaust which, in fact, is all but perfect, but the aperture for the introduction of fuel to heat it has yet to be excavated. Its position is marked by portions of its arch, which is visible. This makes the sixth apartment heated by a hypocaust that has now been laid open. A large number of roofing-tiles are being found, and also of the half-round ridge-tiles, which covered their flanges. Most of the chambers that have been cleared retain the plastering of the walls, and in several instances the coloured decoration, which appears to have been common to all the best rooms, can still be traced more or less distinctly. For the first time in England, a pane of window-glass has been found. It is broken, but sufficient remains to show that its size was $11\frac{3}{4}$ in. by $8\frac{3}{4}$ in. The excavations are attracting many visitors, who watch the proceedings with considerable interest. The best of the articles that have been found are now displayed in a temporary museum that has been opened within the enclosure.

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ONE of the "accidents" recorded in the recent gale was that, as we read in the *Times*, during the height of the gale on Saturday the wind got under the galvanised roof of the grand stand at the Invicta Football Ground at Plumstead, lifted the roof (two tons weight) and blew it over a wall on to some adjacent ground where some boys were playing at football; it fell on one of the boys and broke both his legs. It also brought down several tons of bricks from the wall. Now that is a kind of thing which we do not call an "accident," because it arises

from ignorance or carelessness in construction. Every one who puts up such a roof, and every District Surveyor (if there was one concerned in this case) who passes it, ought to know that wind may exert an immense lifting-power under an open roof of that kind, and the roof ought to be tied down so as to resist the lifting force of wind, not merely secured against lateral movement. The parents or guardians of the unfortunate boy who was so badly hurt would do well to bring an action for compensation against the owners of the stand in question. They, of course, are not directly to blame, but their builder or architect; but it is they who must probably be legally responsible, and a successful action resulting in pretty heavy damages would be a useful practical lesson to those who put up open shed roofs of any kind, which are intended to be permanent, to have them properly constructed and secure against the effect of wind getting beneath them.

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THE stone industry of the United States has suffered a terrible reverse. According to the official "Mineral Resources" of that country for 1893, distribution copies of which have but recently arrived in London, the value of the stone raised in that year was 30·5 per cent. less than in 1892. The following statistics give some idea of the extent to which each branch of the industry was affected:—

| | 1892. dols. | | 1893. dols. |
|---|---|---|---|
| Granite | 12,627,000 | ..... | 8,808,934 |
| Sandstone | 8,265,500 | ..... | 5,195,151 |
| Limestone | 18,392,000 | ..... | 13,947,223 |
| Marble | 3,705,000 | ..... | 2,411,092 |
| Slate | 4,117,125 | ..... | 2,523,173 |
| Bluestone | 1,600,000 | ..... | 1,000,000 |
| | 48,706,625 | | 33,885,573 |

For the individual kinds of stone, therefore, the percentage decreases were as follow:—granite, 30·1; sandstone, 37·1; limestone, 24·3; marble, 34·9; slate, 38·7; and bluestone, 37.5. The officials attribute this falling off to the universal financial depression that prevailed in the United States during a part of the year 1893. In the Southern States even public improvements, such as paving in cities, &c., were curtailed, or entirely suspended, because of the impossibility of selling bonds for the purpose of securing cash for the maintenance of such work. Thus, for instance, the granite block-paving industry of the South suffered to an enormous extent. Nor does there seem much chance of improvement, for we observe that "it is very evident that the year 1894 will run behind even still more than 1893, unless there is a revival of the general conditions of trade greater than it is reasonable to expect." A radical change is proposed to be made in the method of selling stone in the country; the prevailing sentiment amongst quarrymasters seems to favour selling it by weight instead of by the cubic foot, cord, perch, or yard, as at present. This may be all very well for the quarrymasters, but we doubt if American architects regard the proposal in the same light. The objections urged against the present system is that there is no uniform standard of measurement, that it is too cumbersome and allows too many leaks. Precisely the same might be said with regard to the English method of selling stone, but no one in their senses would buy an absorbent stone by weight in this country; we should expect it to arrive from the quarry thoroughly saturated, so as to make it weigh as heavy as possible. Then, again, the question of specific gravity, which in some cases makes no difference in point of quality or durability, would have to be seriously taken into account in purchasing building stone, even as it should now be considered in reference to road-metal, and for the same reasons. The article on stone in the "United States Mineral Resources" is, as usual, very full of interesting matter in addition to the above particulars, but we rather take exception to part of it. At the end is a comprehensive account of some of the foreign stone exhibits at the Chicago Exhibition, which is made a peg whereon to hang certain observations in regard to the stone industry of Great Britain. This portion is ostensibly supplied to the U.S. Geological Survey by a Swedish geologist; but it might have been stated that the pith of the information furnished originally appeared in our columns, and that many of the investigations made by him were in some measure due to assistance received from us. The compilers of the "Mineral Resources" alluded to, being left in the hands of this authority on granite, have fallen into the ridiculous error of imagining that the only building stone of any importance in the United Kingdom is granite—at least, in what purports to be a general account of British building stones, no other than granite is mentioned. Again, statistics of British stone trade given are practically copied from the official returns, without acknowledgment, and in the most barefaced manner.

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THE annual Report to the Willesden Local Board by their Engineer and Surveyor, Mr. O. Claude Robson, is, as usual, a model of clearness and precision, and gives a great deal of information, as the results of experience in regard to the carrying out of various classes of public work, which may be of use to other public bodies as well as that to which the Report is presented. The Report first deals with the subject of roads. Wood-paving is recommended as much more economical in the matter of repairs than macadam, more especially for the repair of the strips adjoining the tramways in roads where these have been laid. The experience of using Guernsey and Leicestershire granite on similar sections of road has resulted in favour of the latter, both for economy in price and punctuality in delivery. A settlement has been arrived at between the London and North-Western Railway Company and the Board with regard to the repair of the roadways to bridges and approaches hitherto repaired by the company under the Railway Clauses Consolidation Act, 1845. The Board is to repair the roadways for the sum of 300*l.* per annum, and the railway company to contribute 1,000*l.* towards the paving and curbing of the pathways, subject to the Board freeing them from all future liabilities with regard to these repairs. The agreement, so far as it relates to the annual repairs, will extend for five years only, as the cost of maintenance will increase as the district further develops. In regard to the planting of trees by the side of public roads, which has been largely carried out, the distance of planting has been increased to 50 ft., instead of 25 ft. to 30 ft. as hitherto, as it was found the traffic was too much obstructed by the closer planting. The trees have been mostly planes, and only about 2 per cent. have failed to thrive. It is noted that the planting, however it adds to the agreeable appearance of the roads, has its drawbacks both in regard to obstruction of light from the street-lamps, obstruction to pathway traffic, and injury to the pathways by the growth of roots. It is therefore recommended that in future the planting should be confined to roads with wide footpaths and where the houses are set considerably back from the road. The necessity of providing better channels in many roads is touched upon, and a 12-in. by 6-in. curb on a 6-in. bed of concrete is recommended in place of the granite setts hitherto provided, as tending to ensure a cleaner and more uniform channel. In regard to sewers, it is mentioned that periodical flushing, once a week, has been kept up with very good results, the flushing being mostly done by flushing-vans. Where the sewers were under fields or private property, a travelling meter with hose has been used, and under other circumstances flushing has been obtained by sluices in the manholes, shut down till a sufficient head of water has been obtained. In regard to the ventilation of sewers, the columns known as "sewer-gas destructors," and the ventilators provided with disinfecting media, have both been abandoned as useless. Instead of these, 6-in. iron pipes have been affixed to buildings or independently erected by the road-side to act as ventilators to the sewers in place of the open grids, and in the Surveyor's opinion this simple method has proved most efficacious in abating the nuisance arising from the generation of sewer-gases and their discharge into the open air. This system has been adopted for the past four years in the Willesden district, and each year sanction is obtained from owners and occupiers of houses to affix additional upcast shafts to houses, with the result that the number of complaints as to offensive ventilation is annually decreasing.

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THE fire which almost entirely destroyed the infantry barracks at Winchester last week was fortunately prevented from extending to the adjacent hall, which is a relic of the ancient Castle, or Domus Regis. The main building forms the incompleted palace designed by Wren for Charles II., whereof the first stone was laid—though not, as some say, by the King—on March 23, 1683. In vol. i. of Milner's "Winchester," 1798–1801, is a large plate, engraved by J. Pass and drawn by J. Cave, "ex autographo, C. Wren, Equit." Some doubt has been cast upon the authenticity of the view, which Milner says is from the drawing of Wren. It shows a three-storied block, with a lofty drum and dome, and a central hexastyle portico carrying an angle-pediment. Each of the two wings has a smaller tower and cupola at its middle point (over a chapel), and a quarter-circle colonnade at its outer end. In front of the group lies a spacious open court flanked by two blocks of two stories and an attic floor, and in front again of these, beyond the gates, are two more blocks (set lengthwise) of three stories and an attic floor. The whole plan was meant to include a grand approach to the cathedral's west front, and a park to the south and west. The Castle, whose foundation is ascribed to William the Conqueror, lay at the south-western angle of the city-wall, and within the castle-wall, against which abuts one end of its so-called chapel, St. Stephen's, since converted into the County Hall. Wykeham, who was Constable for a while of the Castle, is supposed to have there made his first essay in military architecture. James I. gave the Castle and precincts to Sir John de Tichborne, who was the first to proclaim him King, at Winchester; his son, Sir Richard, and Lord Ogle held the fortress for Charles I., but it was eventually dismantled by Cromwell. The property then passed by gift of the Parliament to Sir William Waller, brother-in-law of Sir Richard, by whom (or his son) it was sold to the Corporation, who sold all to Charles II. for five shillings, under a deed of March 17, 1682. The King's House, or Palace, was settled upon Queen Anne's consort, in the event of her pre-decease. During the reigns of Kings George I.-III. it served as a prison for captives in war; at the outbreak of the French Revolution it was assigned to refugee priests, and in 1796 was converted into barracks. Since that time many changes have been made, so as to obliterate the older defensive works; on making the railway the ditch on that side was filled up level with the ancient mound for a new parade-ground. They took another part of the ditch for a widening of St. James's-lane, and nearly all the space between the barracks and South-gate-street has been acquired for purposes of the garrison. The mound is computed to have measured 850 ft. north to south, by 270 ft. east to west. The ditch, 30 yds. wide, fairly followed the line of the old wall. The hall, standing in the outer bailey, or sheriff's ward, measures 110 ft. by 55 ft. within, and is believed to be of *temp.* Henry III. Two arcades of clustered columns, having four shafts around a central

column, in Purbeck, divide it into a nave and two aisles, of five bays; at each end is a window of three lancet-lights, the side windows being later, as also is the open timber roof.* The marble pillars presented by the Grand Duke of Tuscany for the palace staircase were given by George I. to the Duke of Bolton, who set them up in his house at Hackwood Park, near Basingstoke.

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AMONG the correspondence which has been going on in the *Times*, under the title "A Traveller's Complaint," in regard to the inaccessibility of our cathedrals and churches, and what may be called the "guide" nuisance, we are glad to see testimony, in a letter signed "A. J." in the *Times* of Thursday, to the excellent and sensible way in which matters are now managed at Lincoln Cathedral. "A. J." says:—

"Visiting Lincoln last autumn, I was given, on dropping my sixpence into the collection-box for the restoration, &c., of the minster fabric, an excellent and clear plan of the building, 75 ft. to the inch, with nearly 100 references to its several portions, its shrines, tombs, &c., the whole illustrated by three pages of "Architectural and Historical Notes," admirable in their concise fulness, and giving, authoritatively, ten times the information to be gained from that glib parrot-vergerism which irritated human nature is always prone to question. Furnished with this, the visitor is allowed to go over the whole building, unattended and unhustled—in fact, at his perfect, undisturbed leisure. I spent over two hours there with more profit and in greater comfort than my previous experience of cathedral-visiting at home and abroad had led me to believe possible."

It is to be hoped that so excellent an example may be appreciated and followed in other cathedrals. In too many of them the visitor is left in doubt which is the greater nuisance, the waiting until the time when the verger chooses to take him round, or the presence of the verger during the round.

## SOME CURIOUS FEATURES OF OLD PARISH CHURCHES.

BY H. LITTLEHALES.

THE following notes from various sources will probably supply a very fair idea of some of the more interesting pre-Reformation features which are still to be met with in the older churches of this country.

Unless very exceptional, no mention will be found of chalices, patens, sacramental fonts, wickets in doors, locks and keys, cadavers, heart burials, wooden effigies, aumbries, sun-dials, rood lofts and screens, round towers, piscinæ, tiles, detached towers, font covers, diminutive effigies, frescoes, consecration crosses, leaden fonts, quadruple sedilia, bench tables, low-side windows (chancel or western), painted glass, altars, anchorages, &c.

BEDFORDSHIRE.

*Dunstable*:—Herse-cloth.
*Elstow*:—Brass of an abbess.
*Luton*:—Great structure over font.

BERKSHIRE.

*Abingdon* (*St. Helen's*):—Five aisles.
*Abingdon* (*St. Nicholas's*): — Stone roods. Tower in church. Stone lantern projecting from the west wall.
*Binfield*:—Sloping floor.
*Cookham*:—Altar slab, with inlaid crosses of brass.
*Fyfield*:—Credence and piscina combined.
*Goosey*:—A tester over the altar, with the emblems of the Crucifixion.
*Letcombe Basset*: — Brickwork, probably thirteenth century.
*Uffington*:—Octagonal central tower.
*Long Wittenham*:—Piscina with a recumbent figure.
*Wytham*:—Glass from the country-house of the Abbots of Abingdon at Cumnor.

BUCKINGHAMSHIRE.

*Chesham Bois*:—Brass of a chrisom child.
*Denham*:—Brass of an abbess.
*Granborough*:—Chrismatory.
*Marsworth*: — Brass with representation of Death at a bedside.
*Taplow*:—Brass to a Mediæval fishmonger.

CAMBRIDGESHIRE.

*Burwell*:—Part of the brass of an abbot.
*Guy*:—Doorway with triangular head.
*Swaffham Prior*:—Two churches in one yard.
*Swavesey*:—Altar steps of a chantry chapel.

CORNWALL.

*St. Breage*:—Fresco depicting trade implements.

CUMBERLAND.

*Uldale*:—Cuir bouilli case for chalice, fourteenth century.
*Whitbeck*:—Cuir bouilli case, later date.

DERBYSHIRE.

*Breadsall*:—Carved stone figure of the Virgin with the Dead Christ, coloured and gilt, height 2 ft. 5 in., found under floor 1877.
*Chaddesden*:—Stone Gospel-desk.
*Crich*:—Stone Gospel-desk.
*Etwall*:—Stone Gospel-desk.
*Mickleover*:—Stone Gospel-desk.
*Sponden*:—Stone Gospel-desk.
*Melbourne*:—Hemispherical font.
*Morley*:—Glass windows from Dale Abbey refectory.
*Sawley*:—Canon's tomb in a stone-vaulted bay, projecting from north wall of choir; reredos a stone wall cutting off the east end of the choir.
*Tideswell*:—Reredos a stone wall cutting off the east end of the choir.
*Youlgreave*:—Font, with projection for chrism.
[This county is the only one of which the churches have been thoroughly investigated (See Cox's "Notes on Derbyshire Churches").]

DEVONSHIRE.

*Dartington*:—Diminutive effigy in vestments.
*Exeter* (*St. Martin's*):—Font with recess.
(*St. Patrick's*):—Herse-cloth.
*Newton Abbot*:—The lectern was found buried at Bovey Heathfield.
*Paignton*:—Remains of Norman sedilia.
*Stoke* (*St. Nectan*):—Altar of stone with ornamental panelling.
*Tavistock*:—Floor descends to the east with steps *down* into the chancel.
*Tiverton*:—A prymer (Latin Version).

DORSET.

*Bindon*:—Diminutive effigy in vestments.
*Hazlebury*:—St. Wulfric's Shrine.
*Rampisham*:—Churchyard cross has an ample base for preacher and remains of protecting canopy.
*Whitchurch Canonicorum*:— St. Candida's Shrine.
*Wimborne Minster*:—Crypt, with basin with no drain; in east wall mediæval brass to King Ethelred; baptismal cruet for chrism.

DURHAM.

*Dalton-le-Dale*:—Sun-dial on north wall, the time being indicated by the sun through the windows of south wall.
*Houghton-le-Spring*.—External stoup.

ESSEX.

*Great Bardfield*:—Triple chancel-arch, with brackets for rood and attendant figures.
*Colchester* (*St. Martin's*):—Indication of sanctuary-screen.
*Dedham*:—Recess in chancel with chimney.
*Little Easton*:—Brass, retaining colour.
*Greenstead*:—Saxon church of wood.
*Laindon*:—Building attached to church.
*Little Leighs*:—Effigy of a priest in oak.
*Little Maplestead*:—Round church.
*Margaretting*:—Profile brass, c. 1500.
*Prittlewell*:—Recess near font for chrism?
*Stebbing*:—Triple chancel-arch.
*Twinstead*:—Triple chancel-arch.
*Willingale Doe*:—Two churches in one yard.

GLOUCESTERSHIRE.

*Buckland*:—Glass representing three of the Sacraments.
*Dewhurst*:—Brass of a lady with her dog "Terri."
*Fairford*:—Glass.
*Forthampton*:—High altar.
*Leonard Stanley*:—Double walls.
*Newland*:—Brass depicting a miner with his candlestick in his mouth. High tomb with effigy in churchyard.
*Staverton*:—Nave, resembles externally an inverted boat.
*Tewkesbury*:—Sacring bell-case, &c.

HAMPSHIRE.

*Ashley*:—Openings each side of chancel arch.
*Beaulieu*:—Magnificent pulpit projecting from the wall (the church the refectory of the monastery).
*Christchurch*:—Brackets in piscinæ, &c.
*Dummer*:—Canopy at one time over the rood.
*Easton*:—Four-centred chancel arch of the twelfth century.
*Ellingham*:—In the rood-screen can be traced the marks of a sloping desk, facing west; painting of the Crucifixion, hidden by plaster.
*Hartley*:—Horshoe chancel arch.
*Hayling, South*:—Brackets at one time supporting candle-beam (?).
*Headbourn Worthey*:—Stone rood; brass of a Winchester scholar.
*Idsworth*:—Scratched on the wall are some words of one of the services.
*Odiham*:—Font with projection for chrism (with inscription).
*Romsey*:—Hair, to some extent retaining the form of the head, with a thick plait, from the coffin of an Anglo-Saxon girl (?). Cresset stone.
*Scuires*:—Smallest apsidal Norman church; trefoil headed doorway.
*Wherwell*:—Effigy of an abbess.
*Wyke*:—Paten (early).

HEREFORD.

*Brilley*:—Sanctuary screen and ceiling.
*Cladack*:—Tongs for removing dogs.
*Credenhill*:—Triple chancel arch.
*Ledbury*:—Tomb of a lady, with semi-canopy and hanging drapery over the side.
*Michelchurch*:—Sanctuary screen and ceiling.
*Much Marcle*: Tomb of a lady, with semi-canopy and hanging drapery.
*Peterchurch*:—In the apse is the ancient high altar, and on either side of the entrance to the choir is an altar.
*Rowlstone*:—Candelabra.
*Urishay*:—An altar on either side of the entrance to the chancel.
*Wigmore*:—Rood-loft piscina.

HERTFORD.

*Eyot St. Laurence*:—Effigy in wood of the Boy Templar, 2 ft. 3 in.
*Barkway*:—Part of a "creation" window.
*Brent Pelham*:—Burial in the wall with inscription.
*Buckland*:—Brass of a priest vested in a cope holding a chalice.
*Kelshall*:—Locker for processional cross.
*Sundridge*:—Chancel arch has a window on either side and "confessional" figures, one of a priest.
*Standon*:—Chancel 10 ft. above nave with approach of fourteen steps.

HUNTINGDONSHIRE.

*Conington*:—Effigy of a knight in the dress of a friar.
*Hemingford*:—Tomb of an abbot of Ramsey.
*Water Newton*:—Semicircular "Decorated" arches.

KENT.

*Ash*:—External stoup with remains of rivets.
*Brabourne*:—Heart shrine.
*Capel-le-Ferne*:—Triple chancel arch.
*Cobham*:—The brasses.
*Detling*:—Finest wooden lectern.
*Doddington*:—Low side-window with desk, niche and aumbry.
*Eastchurch*:—Alms-basin of stone projecting beneath hagioscope.
*Eynsford*:—Bracket perforated with a hole through which may have passed the cord to draw the curtain in Lent or that for the sacring-bell.
*Folkestone*:—Reliquary.
*East Langdon*:—Cope and modern reproduction as an altar frontal.
*Lenham*:—Single sedile.
*Leybourne*:—Heart shrine.
*Maidstone*:—Quintuple sedilia.
*Newington*:—Shrine (?)
*Otford*:—Easter sepulchre resting-place with eastern bracket.
*Rodmersham*:—Sedilia of wood.
*Ryarsh*:—Piscina, in the form of a tub; knocker *c.* 1480.
*Sandwich (St. Mary's)*:—A pyx.
*Smarden*:—Part of a reliquary with enamelled representation of Baptism, now on an alms-box. Part of an altar-slab remains in the wall.
*Snodland*:—Glass.
*Stone-in-Oxney*:—Offertory-basin in wall.

LANCASHIRE.

*Cartmel Fell*:—Mutilated figure of our Saviour, probably the great rood, length 2 ft. 6 in.
*Chorley*:—Crypt; relics of St. Laurence.
*Hornby*:—At the Roman Catholic church, chalice, inscribed, "Restore me to Caton."
*Layland*:—At the Roman Catholic church,

* See Smirke's paper on The Hall and Round Table, in the Winchester volume of the Archæological Institute, and the print in Warner's "Collections," *circa* 1795.

chalice, inscribed, "Restore me to Layland in Lankeshire."

*Winwick*:—Brass of a man in both armour and chasuble.

LEICESTERSHIRE.

*Ashby-de-la-Zouch*:—Finger pillory for brawlers; pilgrim's tomb.

*Buckminster*:—Very rich staircase to rood-loft.

*Castle Donnington*:—Effigy of an abbot.

*Evington*:—Bracket for a figure, with a smaller bracket having a socket for a candle.

*Leicester (St. Mary's)*: Norman sedilia.

*Orton-on-the-Hill*:—Effigy of a Cistercian abbot.

*Twycross*:—Glass from La Sainte Chapelle.

*Wymeswold*:—Chalice, probably originally a pyx.

LINCOLNSHIRE.

*Bracebridge*:—Chancel arch, 5 ft. in width, with a window on either side.

*Bradley*:—Font, inscribed, "Pater noster ave Maria and crede leren ye Child yt es nede."

*Burton Pedwardine*:—Recess for relic.

*Claypole*:—Altar. Three sedilia in transept.

*Corby*:—Figures of a knight and lady under drapery.

*Cotes-by-Stow*:—Altar slab with six crosses.

*Croft*:—Lectern found in the moat of the hall.

*Dembleby*:—Font was a stoup.

*Dunsby*:—Descent into chancel.

*Ewerby*:—Reliquary.

*Frampton*:—Buttress with inscription and a bust.

*Harlaxton*:—Double doorway.

*Holdingham*:—Strainer arch.

*Halton-le-Clay*:—Narrow chancel arch.

*Horkestow*:—Elevation of chancel. Sloping floor.

*Ingoldmells*:—Brass inscribed William Palmer with ye stylt 1520.

*West Keal*:—Pictorial capitals.

*East Kirby*:—The resting-place for the Easter sepulchre has a projecting basin for offerings.

*Lulton*:—Brick, even the piers and arches.

*Moulton*:—Many brackets project from walls and pillars. Window cill an altar (?)

*Saxoby*:—Sloping floor.

*Spalding*:—Five aisles.

*Long Sutton*:—Octagonal vestry.

*Tupholm*:—Remains of Norman cloister.

*Walcot*:—Inverted piers of nave.

*Wellingore*:—Norman sedilia.

*Whaplode*:—Tower forms a transept.

*Wickenby*:—The font retains its ancient fastening of an iron bar across.

*North Witham*:—Floor descends from the west.

NORFOLK.

*Antingham*:—Two churches in one yard.

*Attleborough*:—Latten figure of a saint, probably from a book-cover found whilst digging a grave.

*Baconsthorpe*:—Stoup in respond.

*Barningham*:—Sepulchral wheeled cross seats shorter near font to allow passage for processions.

*Barton-St. Mary*:—Doorway of unusual form.

*Billingford*:—Two stoups one over the other.

*Blickling*:—Pew bearing name of occupant.

*South Burlingham*:—Stone lectern.

*Cawston*:—Cuir bouilli case for chalice. Figure of the Blessed Virgin, said to have been one of the attendant rood figures, and other remnants of the rood accompaniments. St. Jerome on the screen wears spectacles. Plough loft with incription; alms-box. Remarkable aperture in north wall of chancel.

*Easington*: Grave slab retaining the metal in the marginal letters.

*Fishlake*:—Alms basin. Fragment of a processional cross (?)

*Hazlewood*:—Ancient church belongs to the Roman Catholics.

*Hedon*:—Sculptured tablets, one representing a priest at the altar.

*Holderness*:—Latten crucifix.

*Kildwick*:—Glass from the abbeys of Fountain and Bolton. From the length of the church it is known as the "Lang church of Craven."

*Lastingham*:—Crypt.

*Nun Monkton*:—Font with recess.

*Partington*:—Ancient steps of altar. Pendant for a light.

*Selby*:—Lavatory.

*Studley*:—The font is a copy of the holy water stoup at Fountains Abbey.

*Tanfield*:—Confessional (?) Herse.

*Chedgrave*:—Glass from Rouen Cathedral.

*Cotton*:—Remains of a confessional (?),

*Cromer*:—Recess for processional cross.

*Halvergate*:—Recess for processional cross.

*Hessingham*:—Recess for processional cross.

*Felmingham*:—Great width of doorway for processional purposes.

*Gillingham*:—Two churches in one yard.

*Hargham*:—Remains of a confessional.

*Harpley*:—On the roof is the life-sized figure of a seated priest reading a book. Sedilia in south aisle.

*Hevingham*:—Ground piscina.

*Knapton*:—Semi-circular-headed windows with "Decorated" mouldings and "Perpendicular" tracery.

*Ludham*:—Rolled-up picture of the rood and attendant figures. Platform before rood-screen. Rood-beam independent of loft; alms-box.

*Lyng*:—Copes, now an altar-cloth.

*Melton Constable*:—Low side window with seat and stone desk.

*Northwold*:—Easter sepulchre resting-place.

*Norwich (St. Peter-per-Mountergate)*:—Spoon (1613) having on it a crucifix of probably earlier date.

*Norwich (St. Gregory)*:—Herse-cloth, altar-cloth, sanctuary, knocker, elevation of altar.

*Norwich (St. James)*:—Vestment, now an altar-cloth.

*Norwich (St. Peter-at-Hungate)*:—Sculpture on buttress.

*Pentney*:—Internal Norman wall arcade.

*Potter Heigham*:—Rood-beam independent of loft.

*Ranworth*:—Winch used in connexion with the light before the suspended pyx. Rood-screen most elaborately painted, and having projecting wings and small apertures in the heads of the panels. Representation on a panel of SS. James and Joseph, one with a toy mill the other blowing bubbles. Altar at each side of the entrance. Double wooden lectern, having painted on it some words and music.

*Rolesby*:—Relic-chamber in chancel.

*Salhouse*:—Sacring-bell in original frame in rood-screen.

*Salthouse*:—Window-cills form seats.

*Scarning*:—Sacring-bell in original frame in rood-screen.

*Sherringham*:—Ground piscina.

*Sidestrand*:—Mural cross.

*Snettisham*:—Galilee.

*Snoring Parva*:—Doorway of unusual construction.

*Long Stratton*:—Sexton's wheel for deciding the period of a fast.

*Swaffham*:—Carvings on tower and seats of a pedlar and muzzled dog, referring to a benefactor.

*Trunch*:—Porch buttress over priest's door. Piscina on north side.

*Tunstead*:—Platform behind altar, with chamber beneath; rood-beam independent of loft.

*Upton*:—Piscina with no covering.

*Walpole (St. Andrew's)*:—Great bracket.

*Walpole (St. Peter)*:—Stone canopied-stalls, passage beneath choir, and consequent elevation of altar.

*North Walsham*:—Representation of the Annunciation, the angel being clad in a dalmatic.

*West Walton*:—Early English bell-tower, forming an entrance to the churchyard.

*Wiggenhall (St. Peter)*:—Piscina unusually placed.

*Worstead*:—Plough light inscription. On a panel of the rood-screen is represented a bearded female saint.

*Yarmouth*:—Remains of confessional (?): Quintuple sedilia.

NORTHAMPTONSHIRE.

*Brington*:—Owner's badge on pew.

*Brixworth*:—Church at one time a Roman basilica (?) Stone reliquary.

*Chipping Warden*:—Stone lectern.

*Coggenhoe*:—Stoup in pillar.

*Crick*:—Heraldic tracery.

*Earl's Barton*:—Norman sedilia.

*Elton*:—On a jamb of the porch is a cross, the meaning of which is yet to be explained.

*Finedon*:—Straining arch of great beauty.

*Grendon*:—Norman piers of bulk.

*Heyford*:—Font with bracket.

*Lowick*:—Glass.

*Maxey*:—Rood loft piscina.

*Paston*:—Low side-window with ironwork not permitting the passage of anything over 5 in. in width.

*Pitsford*:—Font with traces possibly of a book-rest.

*Rothwell*:—Triple piscina; crypt with bones.

*Rushden*:—Straining arch of great beauty. Bocher arch.

*Rushton*:—Tomb of a prior.

*Stanford*:—Glass, saved from the Puritan soldiers by the inmates of the neighbouring hall.

*Sudborough*:—Brass of a priest in an alb and stole.

*Tansor*:—Floor rises from the west.

*Ufford*:—Low side window not permitting the passage of anything about 5 in. in width.

*Wicken*:—Lace from Laon Cathedral, buried for some time at the Revolution.

*Wittening*:—Imposts of chancel arch.

NORTHUMBERLAND.

*Brinkburn*:—Natural colours and time tints of the stone of the whole of the interior.

*Bywell St. Peter*:—Coign stones worn by sharpening weapons.

*Haltwhistle*:—Pilgrim's tomb, with sculptured staff.

*Hexham*:—Effigy of a prior, crypt, sanctuary seat staircase.

NOTTINGHAMSHIRE.

*Avon Dassett*:—Effigy in the vestments of a deacon.

*Linton*:—Foliated *bowl* of font.

*Newark*:—Immense brass.

OXFORDSHIRE.

*Addenbury*:—Pictorial cornices.

*Beckley*:—Font with stone desk on adjoining pillar.

*Bloxham*:—Painted glass figure of Wolsey with nimbus, said to have been erected in his lifetime.

*Cassington*:—Remains of alms-dish.

*Chipping Norton*:—Brass of an ironmonger and his wife. Octagonal porch.

*Cogges*:—Octagonal tower placed obliquely at west end.

*Cokethorpe*:—Churchyard with no defined boundary.

*Coombe*:—Pulpit projecting from the wall with fine mural staircase.

*Dorchester*:—Alms-basin. Brass of an abbot. Cut on a window of the chair is a figure of a clerk with holy-water vessel and sprinkler.

*Elsfield*:—Low side-window with seat and desk.

*Marston*:—Fifteenth-century secular vessel used as a communion cup.

*Shiplake*:—Seven windows of painted glass from St. Omer.

RUTLAND.

*Little Casterton*:—Ground piscina.

*Oakham*:—Pictorial capitals.

*Tickencote*:—Rich Norman chancel-arch distorted.

*Tinwell*:—Reliquary.

SHROPSHIRE.

*Battlefield*:—Figure of the Blessed Virgin and dead Christ in oak, nearly 4 ft. high.

*Easthope*:—Sanctuary knocker.

*North Lydbury*:—Altar in north transept.

*Madeley*:—Two fourteenth-century chasubles.

*Melverley*: Immense timber choir-screen.

*Shifnal*:—External canopied tomb in chancel wall (at the Roman Catholic church). A chalice inscribed, "Restore me to Sheafnal in Shropshire."

*Shrewsbury*:—An alb (?) Tomb of an acolyte (?)

*Tong*:—Cup with glass bowl.

*Woolstaston*:—Double font.

*Worfield*:—Sloping floor.

*Wroxeter*:—Font formed from a Roman column.

SOMERSETSHIRE.

*Barton St. David's*:—Octagonal tower.

*Bridgewater*:—Hagioscope through three walls.

*Cheddar*:—Respond of singular richness.

*Chedzoy*:—Vestment, found buried, now an altar-cloth. Stones worn by sharpening of weapons.

*Chewton Mendip*:—Secular cup, now a chalice.

*Compton Martin*:—Twisted pillar.

*Clapton-in-Gordano*:—Altar candlesticks of latten.

*Claverton*:—Alms-dish.

*Kewstoke*:—Reliquary of stone, probably containing at one time a relic of St. Thomas of Canterbury.

*Tintinhull*:—Church house.

*Stanton Fitzwarren*:—Font, with names of the virtues and vices.

*Trull*:—Glass representation of the procession before service, carved on the ends of some pews. Pulpit.

*Willow*:—Foliated bowl of font.

STAFFORDSHIRE.

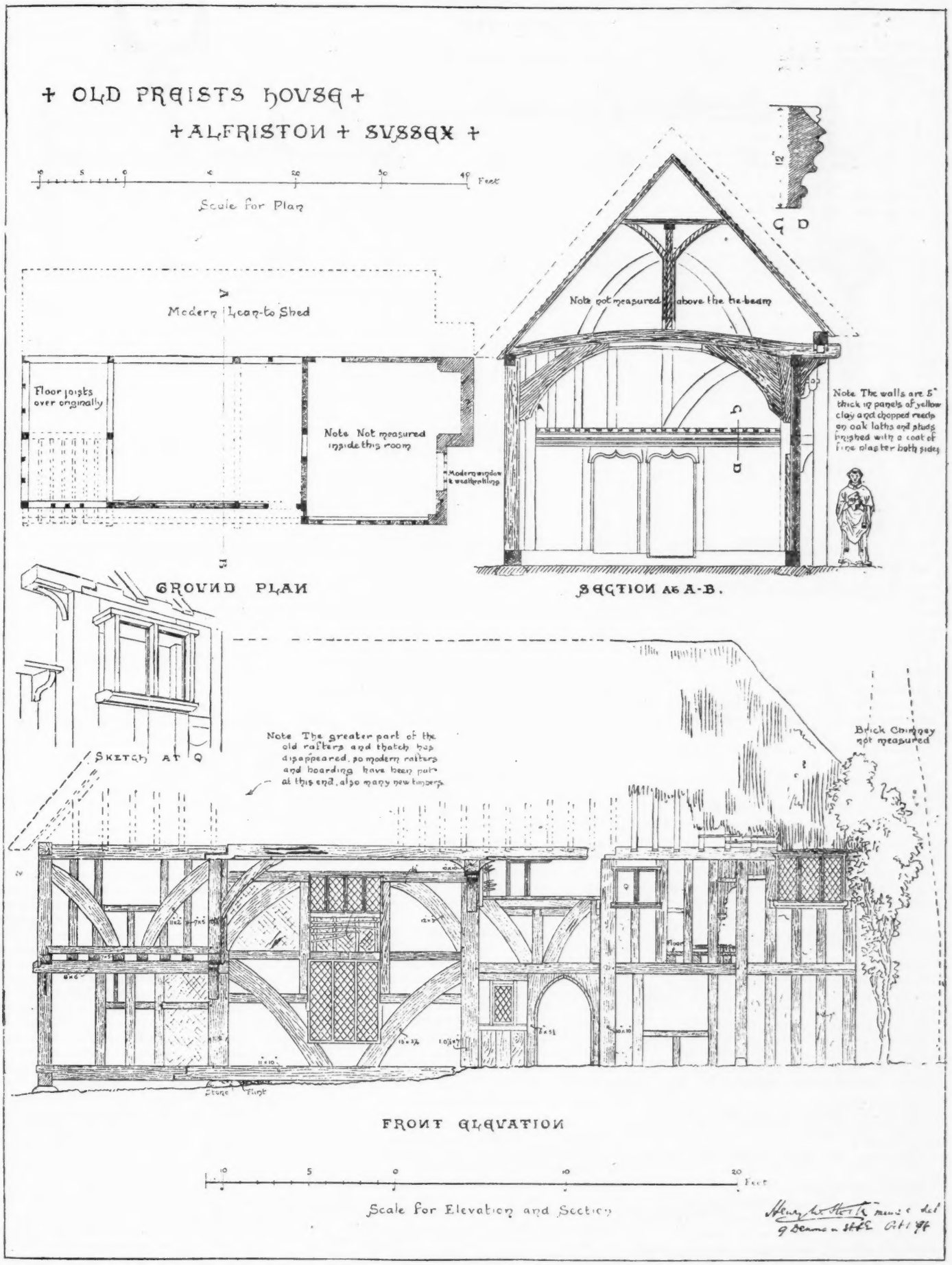
*Ilam*:—Shrine.

SUFFOLK.

*Baddingham*:—Sloping floor.

*Barnby*:—Lectern for the processional cross.

*Blythburgh*:—Jack o' the clock. Reliquary.


+ OLD PRIESTS HOUSE +
+ ALFRISTON + SUSSEX +
0 5 0 10 20 30 40 Feet
Scale for Plan
Modern Lean-to Shed
Floor joists over originally
Note Not measured inside this room
Modern window & weatherboarding
GROUND PLAN
Note not measured above the tie-beam
C D
A B
Note The walls are 5" thick in panels of yellow clay and chopped reeds on oak laths and studs finished with a coat of fine plaster both sides
SECTION AS A-B.
SKETCH AT Q
Note The greater part of the old rafters and thatch has disappeared, so modern rafters and boarding have been put at this end, also many new timbers
Brick Chimney not measured
Floor
Stone
Flint
FRONT ELEVATION
10 5 0 10 20 Feet
Scale for Elevation and Section

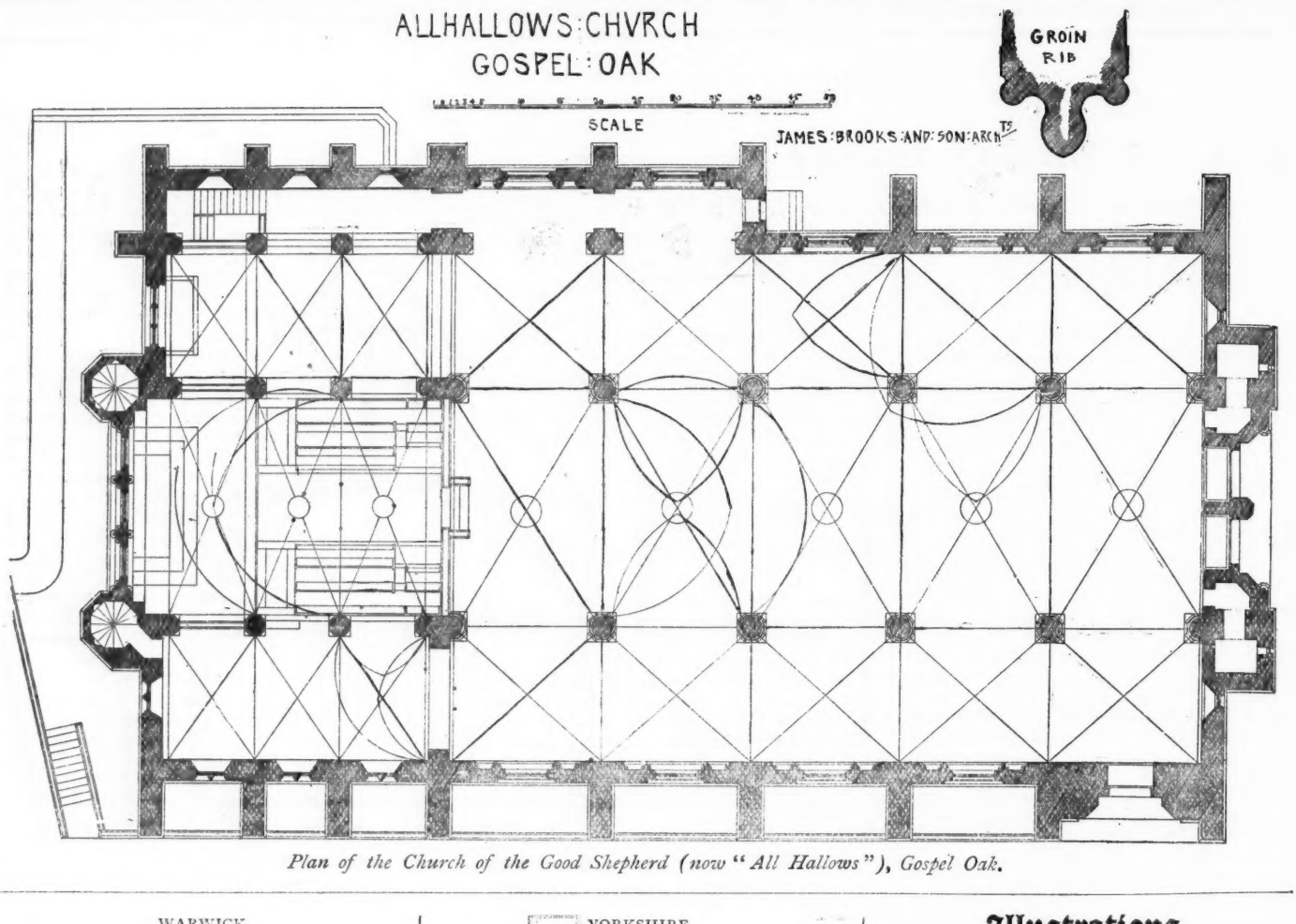
*Bramford*:—Triple chancel arch.
*Framlingham*:—Organ-case, *c.* 1520.
*Greensdesborough*:—Sanctuary knocker.
*Horstead*:—Sacring bell in rood-screen.
*Hessett*:—Burse; veil for the suspended pyx.
*Hitcham*:—Platform before rood-screen.
*Mickfield*:—Knocker.
*Mildenhall*:—Stone with grooves, probably worn by the ropes of the sanctus bell.
*Southwold*:—Jack o' the clock.
*Stonham Aspall*:—Knocker.
*Sudbury*:—In a niche is the head of Archbishop Sudbury.
*Trimley*:—Two churches in one yard.
*Thorpe Morieux*:—The floor of the nave descends from the west.
*Great Wenham*:—Chrismatory (?)
*Yaxley*:—Sexton's wheel for deciding the period of a fast.

SURREY.

*Frensham*:—Cauldron for church ales.
*East Horsley*:—Brass of a kneeling bishop.
*Lingfield*:—Confessional (?)

SUSSEX.

*Cowfold*:—Prior Nelond's brass.
*Ditchling*:—Piscina in north wall.
*Fletching*:—The glass of three windows was dug up near the south wall of the chancel, brass of a glover, with gloves.
*West Grinstead*:—In the roof over the alta remains part of the mechanism for suspending th pyx.
*Horsham*:—Brass showing the arrangement of the stole.
*Hurstpierpoint*:—Herse.
*Shipley*:—Reliquary of metal, *c.* 1100 (in the vicar's care).




*Plan of the Church of the Good Shepherd (now "All Hallows"), Gospel Oak.*

WARWICK.

*Bilton* :—Rood-loft, piscina.
*Lapworth* :—Relic-chamber.
*Polesworth* :—Effigy of an abbess.
*Shotteswell* :—The cill of a window forms a chantry altar.
*Sutton Coldfield* :—Effigy of a bishop with staff on *right* side.
*Warmington* :—The cill of a window forms a chantry altar.
*Warwick* :—Herse ; confessional (?)
*Wooten Wawen* :—Chancel-arch, less than 5 ft. in width.

WESTMORELAND.

*Kirkby Lonsdale* :—Variety of styles.
*Lowther* :—A horse-shose nimbus on a stone in the churchyard.

WILTSHIRE.

*Allington* :—Low side window, with seat and desk.
*Bishops Cannings* :—Confessional.
*Britford* :—Three small Roman arches.
*Castle Combe* :—Chancel arch has niches, figures, and canopies.
*Charlton* :—Squint through two walls.
*Chisleden* :—A fine consecration cross, representing the Crucifixion.
*Compton Bassett* :—Stone rood-screen.
*Combe Bissett* :—The plinth of a column is extended to receive the font.
*Creedwell* :—Five of the Sacraments in glass.
*Enford* —Octagonal vestry, with passage leading to it.
*Malmsbury* :—Window projects from triforium arcade.
*Purton* —Two spires.
*Salisbury* (*St. Thomas*).—Inscribed capitals.
*Stockton* :—Chancel arch, having on each side a small opening. Effigy of a female (of the fourteenth century) reclining on one side, clearly its original posture.
*Wanborough* :—Two spires.
*Yatton Keynell* : Stone rood-screen.

WORCESTERSHIRE.

*Crowle* :—Marble lectern, *c.* 1218, dug up near the ruins of Evesham Abbey.
*Huddington* :—Confessional (?).
*Kempsey* :—Piscina with three brackets, and traces of a shelf also.
*Malvern* :—Tiles, one bearing a remarkable inscription.
*Martley* :—Incense ship and sacring bell, both found beneath the pulpit.
*Oddingly* :—Glass.
*Stoulton* :—Vestment.

YORKSHIRE.

*Bedale* :—Herse.
*Beverley* (*St. Mary's*) : — Minstrels' pillar. Inscriptions on pillars.
*Brandesburton* : — Niche having one side splayed right away.
*Bridlington* :—Stone offertory box.

H. L.

## AN ANCIENT PRIESTS' HOUSE.

THIS is a measured drawing showing the present condition of the ancient timber-built priests' house, at Alfriston, Sussex. The drawing was made by Mr. Henry W. Stock, from measurements at the building. He observes that the interior of the house is so gutted that he has been able to show very little of the interior arrangements.

Both the end rooms have the remains of large open fireplaces of stone, with moulded edges, the exterior portion of brick, and probably contemporary with the house. The church adjoining is of Perpendicular date, the house having been probably built at the same time.

The rector is interested in the preservation of the house, and has made a start in restoring it, intending to use it as a parish room, but funds are much wanted for proceeding with the work (see page 473).

## TRADE CIRCULARS.

MESSRS. H. F. JOEL & CO. send us the new and revised edition of their illustrated catalogue of plant and materials for electric lighting, which also contains a good deal of information as to the fixing and moving of dynamos, motors, arc lamps, &c., which may prove useful to those who, in the colonies or in the provinces, are out of the way of assistance in such works. —— Messrs. James Guthrie & Co. send an illustrated catalogue of their "Hygienic Oil Heating Stoves," which as portable heating stoves independent of flues should be very convenient and useful in many situations ; but why are they "hygienic"?

WINDOW, ST. CUTHBERT'S, BLYTH.—Stained glass has just been inserted in the four-light west window of this church. The subjects chosen were four of the corporal acts of mercy, thus being suggestive of the person memorialised, the late Dr. Ward. Each subject is complete in itself, with fifteenth-century canopy-work at the top and bottom. The work was carried out from the directions of Messrs. Hicks & Charlewood, architects, Newcastle, by Messrs. Percy Bacon & Brothers, of London.

# Illustrations.

## DESIGN FOR COMPLETION OF THE SOUTH KENSINGTON MUSEUM.

THIS illustration is from an admirable and broadly-treated drawing, in Indian ink, by Mr. McGuinness, R.H.A., and is a perspective view of the design for the completion of South Kensington Museum by Mr. John Belcher.

## CHURCH OF THE GOOD SHEPHERD.

SINCE making the plans for this church, owing to a grant made by the Ecclesiastical Commissioners from the sale of the site of All Hallows Church, Upper Thames-street, a new ecclesiastical parish has been formed, and called All Hallows, North St. Pancras, the endowment from the ancient church being assigned to the recently-formed parish, once known as the Good Shepherd, but for the future to be called All Hallows. The site of the church is bounded on the east by Courthope-road, on the west by Shirlock-road, on the north by Savernake-road, on the south by a small portion of vacant land, on which at some future time it is intended to erect a parish hall.

The church is being erected in Ancaster stone, with a core of Portland stone cement concrete. The width of the church within the walls is 64 ft., the length of nave and north and south aisles is 96 ft., chancel 42 ft. 6 in. long, the north and south aisles 37 ft. The south aisle is fitted up to be used as a chapel, having a separate entrance out of a small aisle or passage. Owing to the great fall of the ground from west to east a crypt has been formed under the north and south chancel aisles and under the chancel, giving a parish-room under the north chancel aisle, a choir vestry under the south chapel, and a large vaulted clergy-vestry under the chancel. At the east end of the chancel are two octagonal turrets having staircases leading up to the gutters and for repairs of roofs. At the west end are two square turrets. The nave has five bays, the chancel three. All parts of the church, chancel and aisles, are groined in stone springing from and growing out of cylindrical shafts 2 ft. 8 in. diameter, the springing being 28 ft. from the level of nave floor. Owing to the great thrust of the groining the buttresses project 7 ft. from the external face of the wall, and are carried up without any weathering for about 20 ft., and then have a gentle slope to about 3 ft. of the wall. The accommodation is for nearly 1,400, and the approximate

cost is about 18,000*l.* Messrs. James Brooks & Son are the architects.

## WAYSIDE NOTES IN EAST ANGLIA.

IT would be difficult to find a part of England so rich in old oak carving as East Anglia. Nearly every village church has some, and several have many specimens. Of screens there is an abundance; the many carved roofs are amply exemplified in Brandon's Book—and all architectural students find there a happy hunting-ground for ornamental detail of all descriptions.

The technical detail of Gothic Architecture has, in nearly every county, great similarity during the various epochs or stages of its development. But the same cannot be said of the carvings, and this is of necessity the case, because much depends on the individual carver, and so many influences affect him apart from the canons of his art. Thus in towns where large industries have been formerly carried out, which industries owed their rise to foreign refugees, we find this influence affecting the carving to a large extent, and traits are clearly discernible which are quite distinct from those of other localities, even in the close proximity.

These Gothic carvings are very unequal in merit, and we often find a specimen of great beauty, embodying emblems of Purity and Religion, side by side with some hideous grotesque, the hidden significance of which is hard to discover.

As Gothic architecture approached the wane these fabulous creatures became more and more prevalent, indicating the spirit of the times, until at length a most unhealthy tone prevailed which continued till the close of the style.

These carvings are intensely interesting, even in their bad period, and are worthy of more than a passing study.

They had a distinct value at the time of their execution, and many an object lesson was inculcated by their means. Take for instance the bench-end at Cawston, where the devil is seen devouring a man; or at Norwich Cathedral, with the pelican in its piety picking its breast till the drops of blood stream down into the open mouths of the expectant offspring.

Then who, again, can gaze at the bench-end from Lakenheath and not feel impressed by the devout appearance of the two angels praying, with their small open books resting on the poppy-head. Even in their mutilated condition they preserve a sanctity which the hatchets of Dowsing, the Parliamentary destroyer, could not efface.

The example from Blythburgh bears the armorial bearings of the lord of the manor and benefactor of the church, and the same heraldic idea is conveyed by the greyhound, ducally gorged, in Norwich Guildhall.

At Martham and Cawston we see the ordinary treatment of the poppy-head, with a conventionalised foliage device, of which hundreds of examples are to be found throughout the country.

Anyone willing to brave the fatigues of a somewhat tedious route will be well repaid by a visit to Lakenheath. It is situated on a cross line from Thetford to Ely on the eastern margin of the fens, in a very isolated position.

All round the town, which, by-the-way, is two miles from the station, stretches a sandy waste inhabited by countless numbers of rabbits.

The town is a very old one, and even before 1200 A.D. had a market which was abolished by the Abbot of Bury, and again revived in 1309 by a grant from the Prior and Convent of Ely. The Dean and Chapter of Ely are patrons of the vicarage, and were appropriators of the Rectory and Lords of the Manor from the Dissolution of the Monasteries until, a few years ago, when the Rectory and Manor were transferred to the Ecclesiastical Commissioners. The town was formerly celebrated for the manufacture of cloth, and some of the brasses in the church are to the memory of wealthy clothiers.

The church, St. Mary, is a most interesting building, containing chancel, nave, aisles, north and south porches, and a fine tower, in which hang two Mediæval and three later bells. It chiefly belongs to the Early English period, and there is a beautiful Early English font, and a Norman chancel arch with remains of frescoes. In the church are many fine examples of carved oak, of which one example is given.

The early registers were destroyed by fire, but amongst the charities, of which there are several, is a bequest of 154 acres of fenland for the use of the poor, to dig turf for fuel.

A sketch of the font is enclosed, and it will be seen to be of a very interesting character.

JOHN S. CORDER.

# Books.

*Archæological Survey of Egypt: El Bersheh.* Part I. By PERCY E. NEWBERY. Egypt Exploration Fund Offices, London; also Kegan Paul, Trench, Trübner & Co.; B. Quaritch; and A. Asher & Co.: London.

THIS volume of the valuable publications of the Egypt Exploration Fund is occupied with the Tomb of Tehutihetep at El Bersheh, and includes also plan and measurements of the tomb by Mr. G. Willoughby Fraser, F.S.A. The tomb itself, architecturally speaking, is of the same type with a good many others in Egypt. It is described in the book as being the finest and most interesting of the ten inscribed tombs of the Middle Kingdom at El Bersheh. Like a great many others, it consists of a façade with two columns supporting an imitation beam or lintel cut out of the rock, with a large chamber in the rear entered by a door facing the centre intercolumniation of the façade. There are no columns in the interior chamber, the roof of which is flat, and not curved as found in many other examples that have been previously illustrated in this series of publications and elsewhere. The two columns of the façade, of one of which a large scale drawing is given on a separate plate, have the leaf capital of the well-known Egyptian type, but in a somewhat elongated form, both in regard to its own proportions and its proportionate relation to the length of the column, the whole shaft (below the amulets) being only two and a half times the length of the capital. The shaft is circular, but the capital octagonal on plan, springing awkwardly enough from the circular amulets. Altogether the architectural interest of this tomb is very slight, and we cannot at all concur in Mr. Newbery's suggestion that "the façade before its collapse" (it was damaged by an earthquake) "must have presented an imposing architectural front"; especially considering that the columns and architrave, according to his account, "were coloured pink and marbled with pale green to represent rose-granite." Why this kind of sham, which is denounced as vulgar in the present day, should be condoned when the Egyptians did it, we cannot understand; it was, to our mind, as bad then as it is now. The inscriptions and paintings are of considerable archæological interest. The inscriptions were made also to contribute to the decoration of the interior, being incised and painted green. The ceiling of the portico was painted up to the edges "with yellow quatrefoils on a blue ground"; according to the sketch given, "quatrefoils" is hardly the right word, they are four-petaled flowers in a cross form. A great many of the paintings represent hunting and fishing, &c., indicating that Tehuti-hetep was a monarch of sporting tastes.

We do not understand the observation that "the shrine is practically uninjured as far as architectural features are concerned," because there are absolutely no architectural features; it is an oblong room with plain walls and a flat ceiling. There seems rather a tendency to exaggerate in describing remains of this kind.

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*La Machinerie Théâtrale: Trucs et Décors.* Par GEORGES MOYNET, architecte. Paris: La Libraire Illustrée.

THIS is an extremely amusing book; and that, we fancy, is the light in which the author himself regards it. He undertakes to give an explanation, at great length and with many illustrations and diagrams, of the means whereby stage effects are produced, especially those which are required in that class of drama in which spectacular effect and the production of surprising and unexpected appearances and disappearances of the stage personages are the main objects. The author's tone is, in general, too jocular to allow us to believe that he is very much in earnest about stage-craft. Thus we have a chapter on "Gloires, Vols, et Apothéoses," commencing with the statement that "Une piéce féerique qui se respecte ne va pas sans deux ou trois apothéoses, et souvent plus:" and he proceeds to show the reader "how it is done;" and so on in regard to other branches of the subject. The general impression left on the reader is that the most literal translations of "Trucs" is, or ought to be, "Tricks." We do not think any theatre architect would find the book of much value as a guide to stage construction. But it is full of entertainment, and will be of great interest to that large portion of the public to whom scenic effect is the chief attraction at a theatre.

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*An Old Kirk Chronicle: Being a History of Auldhame, Tyninghame, and Whitekirk, in East Lothian.* From Session Records. By the Rev. P. H. WADDELL, B.D. Edinburgh: W. Blackwood & Sons.

THE author states that this book has been written for the sake of the past and from a sense of duty; so much in the history of parish churches in Scotland having been lost, he thinks it a duty of every parish minister to put on record all the information he can collect as to the history of his parish and its church. We are entirely in agreement with him, and only wish that more parish ministers would endeavour to emulate the author in thus contributing to history. At the same time we must observe that the history here recorded is more general history than what is more specifically called archæological; still less is it architectural. There are however photographs of the churches, both interior and exterior, and of some simple but interesting specimens of old church-plate. There are no plans, which from the archæological and architectural point of view is a fatal error. The book contains much interesting and characteristic parish history, but not of a kind into which we can enter here.

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*Sussex Archæological Collections:* Vol. XXXIX. Lewes: Farncombe & Co. 1894.

THE most interesting item to us in the thirty-ninth volume issued by the Sussex Archæological Society, is the paper by Mr. André on "The Chancel Screens of Parish Churches," illustrated chiefly by Sussex examples. The paper gives a brief sketch of the origin and history of chancel screens generally, with a good many particulars about special examples, and a list, not professing to be quite complete, of chancel or rood screens in Sussex churches. Mr. Michell-Whitley contributes a short note on "Recent Finds of Pottery at Eastbourne," and Mr. Inderwick, Q.C., a longer one on Rye under the Commonwealth; and Mr. W. F. Martin a communication on the rebuilding of Ringmer Church Tower, accompanied by a plan. The volume contains a great deal of subsidiary information in regard to local and family history, &c.

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*A Text-book of Mechanics and Hydrostatics.* By HERBERT HANCOCK, M.A. London: Samson, Low, Marston, & Co. 1894.

THIS book is the embodiment of a series of notes which the author had written for his own use when lecturing on this subject. He has now so arranged them that by the help of copious illustrative examples and diagrams taken from common objects, the student may be able to master the fundamental principles upon which a knowledge of mechanics and hydrostatics is based.

In order that those who have not hitherto acquired much knowledge of mathematics may have some tools to work with, Mr. Hancock has explained the method of measuring angles, and the geometrical meanings of the terms used in plane trigonometry; and throughout the book he has described each portion of this subject in so simple a manner that there should be no difficulty in obtaining a very useful knowledge of these sciences.

The author has attached to each chapter a large number of questions, the answers to which are given at the end of the book. Many of these questions are taken from the matriculation examinations of the University of London, and those of the Royal Military Academy, Woolwich, and exemplify the kind of problems generally set by the examiners.

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*The Slide Rule.* By C. N. PICKWORTH, Wh. Sc. London: Emmott & Co., Ltd., 56 and 57, Fleet-street. 1894.

THE reason why the Gravêt slide rule is not used as much as it deserves to be is probably owing to the want of a small practical manual of instruction exemplifying the utility of the instrument.

Such a work, however, has now been supplied by Mr. Pickworth, who explains very clearly the principle of slide-rule computations, and shows how it can be employed by those wishing to take the fullest advantage of its numerous applications in technical calculations of all kinds. The author deals with his subject in a very simple manner, and even those accustomed to use the instrument will be surprised to find the large number of calculations it can be made to perform.

# Correspondence.

*To the Editor of* THE BUILDER.

## SOUTH SHOEBURY CHURCH.

SIR,—May I suggest that the two recesses at the sides of the chancel arch of this church were not originally intended to accommodate altars, but were survivals of a very early ritualistic arrangement, exemplified by the plan of the principal basilica in the Cœmeterium Ostriani, described by De Rossi in "Roma Sotteranea," as of the earliest years of the fourth century? In this basilica in positions corresponding to the two recesses at South Shoebury, are two niches, in one of which the sacred books were kept, and in the other the sacred vessels, and all things necessary for the offering of the holy sacrifice; they were, in fact, credence tables, or aumbries.

There are two similar recesses in the church at Castle-Rising, Norfolk; that on the north side retains its semicircular arch, whilst that on the south has in the thirteenth been enriched by a well-moulded pointed arch, and furnished with a piscina, when it was converted into an altar recess.

S. J. NICHOLL.

*** There is a semi-circular addition, like a small apse (showing externally), in the north nave-wall of Gumfreston, two or three miles from Tenby. This may possibly come under the same explanation.—ED.

## HEIGHTS OF FUTURE BUILDINGS IN LONDON NEXT THE STREETS.

SIR,—I should be glad if you would state whether I am correct in my reading of Sections 47 and 49 of the new London Building Act, 1894; and I have no doubt that many others would also like to have your opinion, as this is a matter affecting so many people who contemplate pulling down old buildings and erecting new ones. This, of course, did not come into the plan of your very able analysis of the Act, which was read with so much interest.

1. In a street over 50 ft. wide the new building may be 80 ft. high, and two stories may also be put in the roof.

2. In a street less than 50 ft. wide, formed or laid out after August 7, 1862, the new building may be as high as the width of the street, and may have two stories also in the roof.

3. In a street less than 50 ft. wide, formed *before* August 7, 1862, the new building may be as high as the width of the street, and may have also two stories in the roof; but if the old building on the site is higher than the width of the street, the new building may be carried to the same height as the old building. "AN ARCHITECT."

*** Our correspondent is right in paragraphs 1 and 2 of his letter, but not in No. 3, as the whole paragraph is correct for a street formed or laid out *since* August 7, 1862 (*i.e.*, for the present moment), and the words "before August 7, 1862" should be struck out of his paragraph. It will then be correct for the new Act, though it would be more accurate to say, "if the old building on the site *was* higher," &c., instead of "is." The case may be put more plainly as follows:—

1. In a street less than 50 ft. wide formed *since* August 7, 1862, the measure of height of a new building is limited to the measure of width of the street, and an existing building cannot be added to so as to exceed that limit. But if an existing building, which was higher than that limit before the "commencement" of the new Act (*i.e.*, before January 1, 1895) is pulled down, the new building on the same site may be erected to the same height as the old one which it replaces.

2. In the case of a street less than 50 ft. wide formed *before* August 7, 1862, the consideration of the width of the street *does not operate at all*, and the height of a new building is only limited by the general limit of height fixed by the new Act (*i.e.*, 80 ft.); with the exception that if the new building replaces an old one of greater height than 80 ft., it may be carried to the same height as the old one. This is a very undesirable state of things; but that is unquestionably the interpretation of the wording of the new Act.—ED.

## A MACHINE FOR CRUSHING SHINGLE.

SIR,—Could any of your readers inform me if there is a machine in existence for crushing shingle into sand for stone-sawing purposes? If so, I should like to know where it could be obtained.

F. E. STEPHENS.

## *COMPETITIONS.*

MUNICIPAL BUILDINGS, KING'S LYNN.—The result of the competition for municipal buildings at King's Lynn has just been made known. The first premiated design is by Messrs. Tree & Price, 70, Warwick-road, Earl's Court, London; the second being by Mr. G. Sedger, 26, Great James-street, Bedford-row.

## PRIVATE BILLS—SESSION 1895; AND BOARD OF TRADE PROVISIONAL ORDERS.

IT is stated that the plans and books of reference deposited last month in the Private Bill Office relate to 189 undertakings, of which about 50 are for railways, 65 for gas and water (principally), and 30 for electric lighting. We give an abstract of the more important projects.

*Railways.* — Metropolitan District — Revival of powers and extension of time to complete the Acton Junction line, under their Act of 1878. South-Eastern—Further lands at London Bridge Station for their suburban traffic. City and South London —Extension of time under the Acts of 1890-3, and an additional approach beneath Arthur-street east to King William-street Station. London, Walthamstow, and Epping Forest—To alter and deviate from authorised lines in Hackney, Newington, Clapton, Walthamstow, Leyton, and Tottenham. Metropolitan and Outer Circle—To abandon and annul their Act of 1888. Extension of time for completing the electric railway-line from the City to Finsbury Park. Latimer-road and Acton; extension of time. Manchester, Sheffield, & Lincolnshire —very numerous powers, comprising new lines in the counties of Nottingham, Lincoln, and Middlesex, and in London, deviations from their lines authorised by their "Extension to London" Act, 1893, and a line from the Metropolitan Railway at Preston-lane, near Harrow, through Kingsbury, to Willesden. The system of this railway forms a net-work of lines, reaching from Liverpool, Chester, and Wrexham, to Hull, Grimsby, and Lincoln, with branches, not yet completed, to Southport, Preston, and Blackpool, and to Leeds, Halifax, Bradford, Wakefield, Huddersfield, Mansfield, and Derby. To Sir E. Watkin is mainly due the extension to London. It begins nine miles north from Nottingham, at Annesley, sung by Byron, for it was Mary Chaworth's home. Thence by Hucknall Torkard, near Wollaton, through Nottingham, by Clifton, commemorated by Kirke White, where they point out the poet's favourite avenue, and so to Gotham, Loughborough, past Charnwood Forest, on to Leicester. It then goes on by Lutterworth, where Wycliffe was rector during the last nine years of his life, to Rugby, and then through Northamptonshire into Buckingham, to join the Metropolitan line at Quainton-road, six miles north from Aylesbury. From that town running-powers will be exercised to Wendover, Great Missenden, Amersham, Rickmansworth, and Harrow, to Willesden Green. Thence a new branch will be made to traverse West and South Hampstead and St. John,s Wood, ending in a terminus at Marylebone-road, east of Lisson Grove. Large areas are taken for sidings, &c., at Neasden, and for goods and coal in Marylebone. Thus will be cleared away Harewood and Blandford-squares, and with them two homes of "George Eliot," also nearly all the houses and their gardens in the quarter lying south of the eastern portion of St. John's Wood-road. A line from Uxbridge terminus, Great Western Railway, by Denham, where Sir Humphrey Davey loved to fish, Moor Hall, and Harefield Mills (where, they say, was cast the copper ball of St. Paul's), to West Hyde and Springwell, whence two branches will extend to the Metropolitan and London and North-Western stations at Rickmansworth. The line passes for about nine miles through the Colne Valley and Harefield parish —familiar to Milton, who, when living in Horton, often visited at Harefield Place, and wrote his "Arcades" for performance there by the grandchildren of Alice, Countess Dowager of Derby, who bought Harefield in 1601, soon after her marriage to the Lord Keeper, Sir Thomas Egerton. He refers to these places in "Arcades" and "Epitaphium Damonis." London and South-Western—New line from Stratton, with a branch to Bude, through Marhamchurch, Poundstock, Bridgerule, and Pyworthy, to their branch at Holsworthy (fourteen miles distant); widening of main line at and between Worting and Basingstoke, and to take additional lands at various places in London, the suburbs, and provinces, including a small plot of the New Forest at Eling. Stroud and Painswick—A new company to make a light railway from the Great Western and Midland at Stroud to Painswick and Cranham, through South Rodborough and Whiteshill (six miles). Liskeard and Looe Union Canal—Lines from their railway to Liskeard Station (Great Western Railway). Hayes and Farnborough—For dissolution and re-incorporation, and a new line (about four miles) from Bromley Station, London, Chatham and Dover Railway, by Hayes, Barnet Wood, and Sevenoaks Road, to Locksbottom at Farnborough. Lynton and Barnstaple—A new line between those places, fifteen miles distant. Great Eastern — A line, in the Isle of Ely, from Whittlesey St. Mary to Benwick, six miles distant, and a quay on the Nene at Benwick. Great Western—New lines and widenings in Monmouth and Glamorgan, and similar minor works in the western portions of their system. A new company—For a line from West Buckland, Devon and Somerset Railway, to Lynton, thirteen miles distant. Isle of Wight Central—A line from Ashey, Ryde, to Horringford, near Arreton, joining their Ryde and Newport, and Newport and Sandown branches (six miles). Great Northern—New lines at Peterborough, Nottingham, Basford, and Manchester, with the widening of their Hitchin to Arlesey, Helpstone to Essendine, Little Bytham to Corby, and East Markham to Gamston lines. Yorkshire Dales—several lines in the West and North Ridings. East Denbighshire—Railways to connect Wrexham and Rhosllanerchrwgog, and with the Pontcysyllte line of the Shropshire Union Railways and Canal Company in Wrexham. Tenterden—Lines from Boxley through Maidstone, Loose, East Farleigh, Boughton Monchelsea, to Headcorn (about thirteen miles); from Headcorn through Frittenden, Biddenden, to Tenterden (seven miles distant); and from Tenterden through Woodchurch, and Kennardington, to Appledore, and Snargate on Ashford and Rye line (six miles distant). Torrington and Oakhampton—A line through Great and Little Torrington, Langtree, Petrockstow, Meeth, Exbourne, and Sampford Courtenay to Oakhampton (seventeen miles distant); which will appropriate an aggregate of twenty-five acres of common land mostly at Hatherleigh and Great Torrington. Caledonian—To take over the Solway Junction Railway undertaking. South-Eastern—To purchase the Lydd Railway.

*Municipal.* — Brighouse Corporation — Various powers; this bill will seek for powers "to require street musicians to depart when requested," and "to impose penalties on occupiers refusing to give names of owners." Croydon Corporation—For a Watch Committee, a separate police force and exclusion from the Metropolitan Police District. Bristol Corporation—extension of city boundaries, by including Shirehampton, Herfield, Stapleton, Kingswood, and Saint George parishes, with Dunball Island, and parts of Brislington, Bedminster, Ashton, Henbury, Westbury, and Mangotsfield. Folkestone Corporation — Boundaries to include Cheriton and Sandgate for all municipal and sanitary purposes. Blackpool Corporation—New roads and extension of limit to take in all Bispham with Norbrick and the adjacent sea-shore. Liverpool—A company to take over the New Cattle Market Company's undertaking and new works for the same, including railway lines, subways, &c., in Bootle township. Kingston-on-Hull Corporation—For a variety of powers, comprising an extension of limits; a site in Sculcoates for new public municipal buildings, with central library and technical instruction schools; to prohibit the erection or continuance of sky-signs, and to regulate street advertising and the use of vehicles for displaying advertisements in the streets; a crematory in the Western Cemetery; and to "prohibit the constructing or fixing of any projection or advertisement hoarding or other hoarding over any street, or so as to allow any suspended load to hang over the surface of the street" without their consent. Local improvements at Wood Green, Tottenham—To include the erection of baths, washhouses, and artisans' dwellings, and widening of Station-road and the main road. To divide St. Paul's, Deptford, with Hatcham, from the Greenwich District, to set up a separate vestry therefor, and to provide that the said District shall consist of only the parishes of St. Nicholas, Deptford and Greenwich. To amend the Westminster (Parliament-street) Improvements Act, 1892, reviving certain powers under the original Act of 1887, for the compulsory purchase of the Great George-street site, and abandon the two new streets authorised by the latter Act.

*Tramways.* — Leeds Corporation — New lines. London Street Tramways—To abandon the Archway-road line, and for relief from obligation to contribute to the cost of reconstructing Highgate Archway; and lease tramways from the London County Council or the Local Authority of any district adjoining the County of London. London, Deptford, and Greenwich Co.—New tramways in Tooley-street and Parker's-row.

*Gas.*—British Gas Light Co. (Staffordshire Potteries)—Additional capital for their works at Etruria and Brownhills in Burslem. The Middlesex Gas Co.—For dissolution and re-incorporation, and new works for extended supply in Hendon and Finchley. A joint Board for Mytholmroyd and Hebden Bridge, Yorks. W.R., Local Boards, the latter to take over the Hebden Bridge Gas Co.'s works. Brighouse Corporation—To purchase the Rastrick Gas Co.'s undertaking. South Metropolitan—To convert their capital into stock bearing a uniform lower standard of dividend, and for representation in the management of stock-holders in their employ.

*Water.*—Barnsley Corporation—New works and reservoir in Ecclesfield, to be made by embanking the Haggbrook valley. Merthyr-Tydfil Local Board—A new reservoir in Llanfyrnach, by a dam across the upper portion of the Fây Fechan, the reservoir to extend up the river for about 33 chains. Rotherham Corporation—New works, and for further time to complete the Dalton reservoir. Lambeth—To raise not more than 500,000*l.* additional capital, for two additional reservoirs, and enlargement of those now at West Molesey. Croydon Corporation —To acquire plant, machinery, rights, &c., from the last-named company for supplying the South Norwood, Upper Norwood, and West Wards. Bridlington and Quay Water Co.—For dissolution, and re-incorporation as the Bridlington Water Co.

A company to supply Cranbrook, Goudhurst, and Hawkhurst, in Kent.

*Canals, Harbours, Docks, &c.*—Thames and Severn Canal Navigation Company—To sell their undertaking to a fresh corporate body, consisting of the "allied navigations," being representatives of various local enterprises, the County Councils of Gloucester, Wiltshire, and Berkshire, the Thames Conservancy Board, and others. Mersey Docks and Harbour Board—New pier from the Alfred Dock, with floating landing-stage and bridges to the river-wall. Swansea Harbour Trustees—A swing-bridge to replace the draw-bridge across New Cut, with a lock or half-tide basin by the existing north dock. Sutton Harbour Improvement Company—A quay, to be called the Coxside Quay, 700 ft. long, and to deepen Sutton Pool Harbour, Plymouth. Portishead—To widen and to lengthen, by about 560 yds., the present pier, in the Bristol Channel. A sea-wall at Dover, from the end of East Cliff-terrace, to Ness Point, St. Margaret-at-Cliffe. Brading Harbour and Railway—Several new works, to include a fresh channel from the "Ferry" Inn to the sea. To appoint Commissioners to construct drainage, outfall, and incidental works, in respect of the Fender Valley drainage.

*Provisional Orders.*—Notice is given of intention to apply to the Board of Trade for provisional orders as follows:—*Electric Light and Electricity*—Production, storage, and supply of light, or light and energy and power, by the Corporations of Winchester, New Windsor, Luton, Borth, and Carlisle; the Local Boards of Walthamstow, Alderley Edge, Cheshire, Swindon New Town, St. George, Gloucester, Radcliffe, Lancashire, and Leigh, Lancashire (Urban Sanitary Authority); by the following electric-light or power companies—County of London and Brush Provincial, to supply St. Olave's, St. Mary, Battersea, St. Mary, Newington, and Devonport; Windermere and District, in Grasmere, Ambleside, Bowness, Windermere, Kendal, Ulverston, and Grange; Pontypool, within the Local Government Board District; Liverpool; Bath City; Charing Cross and Strand, within the Strand District; Salisbury (extended area); Notting Hill (extended area); Holloway, in Great Crosby, Lancashire; Municipal, in Margate; and British Insulated Wire Company, Prescot, for Prescot, Whiston, Eccleston, Rainhill, and Hington, Lancashire. *Gas*—Enlarged works and areas by the following gas companies:—Barnstaple, Newark (Nottingham), and Felixstowe; and the taking over by the Corporation of St. Ives, Cornwall, the works near the Meadow. *Water*—Waterworks in Hayling Island; Holyhead Waterworks Company, enlarge their lower reservoir from $1\frac{1}{3}$ to $4\frac{1}{3}$ acres in area, and to make a new one, adjoining, of $2\frac{1}{2}$ acres. *Tramways*—West Hartlepool (new company); from Farnborough to Aldershot, through the North and South Camps, and the General Parade ground; in Great Yarmouth, with cars that can run on or off rails; Carlisle and district, new lines in Stanwix, St. Mary's, and St. Cuthbert's; Newcastle-on-Tyne Corporation, to extend to their system powers for moving the cars by wire or other ropes; City of Gloucester, new lines in the city, and in Hempstead, Tuffley, and Upton; London United—new lines in Hammersmith and Acton. *Harbours and Piers*—To appoint Commissioners for the improvement and maintenance of Cowes Harbour; to lengthen, by about 600 ft., the stone pier at Swanage, by the Swanage Pier Company; a new wharf and wall in the Camber, by the Portsmouth Corporation; a pier, about 150 yds., of piles, at Woody Bay, near Martinhoe, Devon, by Mr. B. G. Lake, or a company; and a pier, 230 yds., with new harbour-wall and landing-slip, at Minehead, Mr. G. F. Luttrell, of Dunster Castle, being "promoter" thereof.

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ARCHITECTS' ORDER FORMS.—This is a book of printed forms and counterfoils for giving orders for extras on a contract, and keeping a record of them. It is uniform with the book of "Certificate Forms" noticed in a previous number, and is issued by the same publisher (E. W. Savory, Cirencester).

A POCKET "READY-RECKONER."—The "Thumb Ready-Reckoner" (Oxford University Press) is a little volume 2 in. square giving the amount of every sum, from $\frac{1}{16}$ of a penny to 19s. 6d. when multiplied by numbers from 1 to 100. It contains also interest tables, and weights and measures and metric tables.

PULPIT, STARCROSS PARISH CHURCH, DEVONSHIRE.—The parish church at Starcross, dedicated to St. Paul, was recently re-opened, after restoration from the designs of Messrs. Rowell & Son, architects, of Newton Abbot. At that time a memorial pulpit from these gentlemen's plans was promised by a former resident of Starcross, and the work has now been carried out. It is octagonal in plan, the interior of the rostrum being gained by the preacher by a flight of six steps. It is made entirely of English oak. The base is moulded, and the upper portion has recessed panels on each of its seven sides. These are traceried and carved at top and bottom, and the whole structure is surmounted by a moulded and carved cornice. Messrs. Harry Hems & Sons, Exeter, have carried out the work.

# The Student's Column.

## DETAILS OF RURAL WATER SUPPLY.—XXVI.

PUBLIC INQUIRIES—(*conclusion*).

IN the preliminary chapter of this series it was stated that the money for carrying out waterworks by Local Authorities is usually obtained upon loan after a Local Government Board inquiry.

The Public Health Act, 1875, sec. 293, empowers the Local Government Board to cause to be made from time to time "such inquiries as are directed by this Act, and such inquiries as they see fit in relation to any matters concerning the public health in any place, or any matter with respect to which their sanction, approval, or consent is required by this Act."

The principal matters connected with the supply of water to rural districts upon which public inquiries are held, are:—

1. The borrowing of money beyond a certain amount.
2. The carrying of water-mains without the district.
3. The purchase of lands otherwise than by agreement.
4. The formation of a special drainage district for purposes of water supply.
5. The construction of large reservoirs.

The Public Health Act, 1875, sec. 295, states that "all orders made by the Local Government Board in pursuance of this Act shall be binding and conclusive in respect of the matters to which they refer, and shall be published in such manner as the Board may direct."

Sec. 296 empowers Inspectors of the Local Government Board "for the purposes of any inquiry directed by the Board (to) have in relation to witnesses and their examination, the production of papers and accounts, and the inspection of places and matters required to be inspected, similar powers to those which Poor Law Inspectors have under the Acts relating to the relief of the poor for the purposes of those Acts."

### 1.—*The Borrowing of Money.*

By Secs. 233, 234, Local Authorities are empowered, with the sanction of the Local Government Board, to borrow money for "permanent works" (*e.g.*, waterworks), and for such purpose they may "mortgage to the person by or on behalf of whom such sums are advanced any funds or rates out of which they are authorised to defray expenses incurred by them in the execution of this Act." In the case of a Rural Authority the cost of providing a supply of water to any contributory place within the district (*e.g.*, parish) is by Sec. 229, a special expense, and only the rate or rates out of which such expenses are payable may be mortgaged for that purpose.

The total amount of the loans outstanding is not at any time to exceed the "assessable" value for two years of the premises assessable within the district in respect of which such money may be borrowed. By "assessable" must be understood "rateable" in this connexion.

Where the sum proposed to be borrowed, together with the balances of outstanding loans (if any), would exceed the assessable value for one year of such premises, the Local Government Board shall not give their sanction to such loan until one of their inspectors has held a local inquiry and reported to the said Board.

The loan is usually obtained from the "Public Works Loan Commissioners," on the recommendation of the Local Government Board. It must be remembered that the Local Government Board can only recommend, and cannot compel.

### 2.—*The Carrying of Water-Mains Without the District.*

Sec. 32 requires a Local Authority before commencing the construction or extension (sec. 54) of any water-main without the district, to give three months' notice by advertisement in one or more of the local newspapers circulated within the district where the work is to be made. Such notice is to describe the nature of the intended work, and shall state the intended termini thereof, and the names of the parishes, and the turnpike roads and streets, and other lands (if any) through, across, under, or on which the work is to be made, and shall name a place where a plan of the intended work is open for inspection at all reasonable hours; and a copy of such notice shall be served on the owners or reputed owners, lessees or reputed lessees, and occupiers of the said lands, and on the overseers of such parishes, and on the trustees, surveyors of highways, or other persons having the care of such roads or streets.

Sec. 33 is to the effect that if any objection is raised against the intended works the said works must not be commenced without the sanction of the Local Government Board.

Sec. 34: "The Local Government Board may, on application of the Local Authority, appoint an inspector to make inquiry on the spot into the propriety of the intended work and into the objections thereto, and to report to the Local Government Board on the matters with respect to which such inquiry was directed, and on receiving the report of such inspector the Local Government Board may make an order disallowing or allowing, with such modifications (if any) as they may deem necessary, the intended work."

Sec. 285 provides that "any Local Authority may, with the consent of the Local Authority of any adjoining district, execute and do in such adjoining district all or any of such works and things as they may execute and do within their own district, and on such terms as to payment or otherwise as may be agreed on between them and the Local Authority of the adjoining district."

An important issue has arisen in connexion with the two last clauses, which is clearly set forth in the following extract from the *Justice of the Peace* for May 19, 1894, which applies equally to water-mains (Sec. 54):—

"Query:—(2). If one Authority desires to carry a sewer through land of an adjoining Authority, will it be sufficient to comply with Sec. 32, or will it be necessary to obtain the consent mentioned in Sec. 285?

(3). If such consent is necessary, can it be arbitrarily withheld by the adjoining Authority?

Answer:—(2). We think the consent of the adjoining Authority must be obtained. Such consent is a condition precedent to the works being undertaken.

(3). If the consent is withheld there is no power of compelling the consent to be given. It is, therefore, immaterial whether or not the consent is arbitrarily withheld, as such consent is necessary before undertaking the works."

### 3.—*The Purchase of Land otherwise than by Agreement.*

A Local Authority after having complied with the requirements of sect. 176 (sub-sec. 2), with regard to publication and the service of notices, may petition the Local Government Board to permit them to put into force the Lands Clauses Consolidation Acts. After receiving such petition, and being satisfied that the necessary formalities as to publication and service of notices have been complied with, the Local Government Board may either dismiss the petition or institute an inquiry. After such inquiry the Local Government Board may grant the petition, with such modifications or conditions that the Board may think fit.

### 4.—*The Formation of Special Drainage Districts.*

As stated in chap. i., the Local Government Board are rarely in favour of this step for purposes of water supply alone.

### 5.—*The Construction of Large Reservoirs.*

This refers only to reservoirs other than service reservoirs or tanks which will hold not more than 100,000 gallons, and therefore rarely applies to questions of rural water-supply. The Local Authority is required to properly advertise the proposed work in the local newspapers, and if any person who would be affected by the intended work lodges an objection, the Local Authority may appeal to the Local Government Board. After receiving such appeal the Local Government Board may institute an inquiry, after which they may make an order disallowing or allowing, with such modifications (if any) as they may deem necessary, the intended work.

Where a Local Authority make default (*inter alia*) in providing their district with a supply of water (sec. 299), and complaint is made to the Local Government Board, the Local Government Board, "if satisfied, after due inquiry, that the authority has been guilty of the alleged default, shall make an order limiting a time for the performance of their duty in the matter of such complaint. If such duty is not performed by the time limited in the order, such order may be enforced by writ of mandamus, or the Local Government Board may appoint some person to perform such duty." Similar powers are now given by the Local Government Act, 1894, sec. 16, to County Councils upon the complaint of Parish Councils.

Before holding an inquiry the Local Government Board require to be supplied with certain information in the form of statistics, plans, estimates, and details. The requirements of the Local Government Board as to plans have already been dealt with in chap. xi. The remaining information has to be supplied upon forms issued

for the purpose by the Local Government Board, which are filled up by the clerk or engineer, according to the nature of the queries.

The appended form has to be filled up by the engineer of the proposed works :—

WORKS OF WATER SUPPLY.—ESTIMATES AND DETAILS.

Name of Sanitary Authority .....

In the case of a Rural Sanitary Authority, name of contributory place for which the works are required.....

*Estimate for Cast-iron Mains.*

| Name of street or road. | Internal diameter of pipes in inches. | Weight per yard in cwt. lbs. | Total length in yards. | Total weight in cwt. lbs. | To carry head in feet vertical. | To carry lbs. pres. on the inch. | Price per cwt. | Total. £ s. d. |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

*Estimate for Fittings.*

| Description of work. | Nos. | Internal diameter in inches of valves, &c. | Weight of each in cwts. and lbs. | Price for cash complete. | Total. £ s. d. | Remarks. |
|---|---|---|---|---|---|---|
| Fire-cocks and hydrants.... | | | | | | |
| Casings to fire-cocks and hydrants, complete ... | | | | | | |
| Sluice-valves.. | | | | | | |
| Casings to sluice-valves complete ... | | | | | | |

N.B.—Describe the sluice-valves, fire-cocks and hydrants, and state if or not the valves, or any portion of them, are to be of gun-metal.

Describe the casings and street fittings in detail.

Furnish diagrams if they have been prepared.

*Details of the Works.*

| Nos. | Headings for a Detailed Description of the Works to be furnished by the Engineer. |
|---|---|
| | *Pumping Works.* |
| 1 | Sort of engine proposed. |
| 2 | Estimated power of engine. |
| 3 | Estimated weight of coal per hour, per h-p. |
| 4 | Volume of water to be lifted. |
| 5 | Head to which water is to be lifted. |
| 6 | Internal diameter of rising main in inches. |
| 7 | Calculated velocity of water in feet per second, through the rising main. |
| | *Impounding and Storage Reservoir.* |
| 1 | Area of gathering ground, in acres. |
| 2 | Average annual depth of rainfall. |
| 3 | Surface area of reservoir when full, in acres. |
| 4 | Greatest depth of water in the reservoir when full, in feet. |
| 5 | Total volume when full, in gallons. |
| 6 | Length of by-wash. |
| 7 | Height of the embankment above top water-level, and top width and thickness of the puddle-wall at bottom and at top. |
| | *Covered Service Reservoir.* |
| 1 | Area of reservoir in square yards. |
| 2 | Depth of water in reservoir when full, in feet. |
| 3 | Volume of water in reservoir when full, in gallons. |

N.B.—Describe in writing the proposed mode of construction of covered reservoirs; as, also, how the reservoir is to be ventilated, lighted, and worked.

It is not desirable to make the pumping main a supply main also, nor should the velocity through any pumping main exceed 2 ft. per second.

The whole of the cast-iron pipes and other castings must be varnished.

There should not be less than 3 ft. in length of by-wash for each 100 acres of gathering ground.

Add any additional details necessary to a full explanation of the proposed works.

Plans and sections, or tracings of them, together with details, must be furnished.

*Summary.*

| Description of Work. | Cost. £ s. d. | Total Cost. £ s. d. | Remarks. |
|---|---|---|---|
| | | | |

Date . (Signed) .

N.B.—This form should be signed by the engineer of the proposed works.

At the inquiry the engineer is called upon to describe and explain the proposed works, and is frequently subjected to a sharp cross-examination upon the details. It is therefore necessary that he should be fully prepared upon every point, and have his notes in such a form as to be ready for reference at a moment's notice. A useful method is to use a note-book with an alphabetical margin, and to arrange the various matters alphabetically. This practice will be found simple and rapid. Another useful practice is to lay down the mains and branches upon a 1 in. ordnance map, indicating the positions of reservoirs, tanks, sluice-valves, hydrants, &c., and distinguishing by means of different colours the ownership of all lands built upon, passed through, or in any way affected by the intended works.

In conclusion we would urge upon the student the necessity for careful thought and preparation before advancing any scheme for water supply. The details comprehended in the profession of a waterworks engineer are innumerable, but upon the full appreciation of these details will depend his success or failure. A small scheme requires, in its way, as much preparation as a large one, and an error in calculation, which in the latter would be insignificant, might be the ruin of the former.

The habits of careful investigation, unerring accuracy, and steady perseverance, combined with a thorough practical knowledge, are qualifications which alone will lead to the execution of those works with which the engineer may afterwards be proud to hear his name associated.

## *GENERAL BUILDING NEWS.*

CONGREGATIONAL CHURCH, CARDIFF.—A new Congregational Church is in course of erection for the members of Roath-road Congregational Church, Cardiff, in Stacey-road. The buildings will face Oakfield-street, and will provide accommodation for over 600 worshippers, with vestries, class-rooms, and a school or hall in the rear. Mr. John Styles, of Canton, Cardiff, was the contractor. The architects were Messrs. T. Waring & Son, of Cardiff.

EXTENSION OF GLASGOW POST OFFICE.—A new building in Ingram-street, Glasgow, have just been completed for the Glasgow Post Office. It is a building of three stories, 120 ft. by 77 ft. Provision is made on the ground floor for additional sorting accommodation, there is a new letter-carriers' sorting department on the first floor, and the top flat will be occupied later on as the telegraph instrument room. One of the first buildings in the city to adopt electric lighting, the current in the post-office is obtained from the city supply station. Owing to the large additional supply of current required in the extended building, the question of laying down the generating plant necessary for the lighting of the whole building was at early stage considered by the Post Office authorities, and the estimates were prepared by Mr. W. H. Preece, C.B., F.R.S., the Engineer-in-chief to the Department, which showed that a large saving would be effected by following that course. The work of carrying out Mr. Preece's specifications has now been completed. The new plant has been erected in the basement of the new block. All the work has been carried out under the supervision of Mr. E. Ashton, superintending engineer of telegraphs for the western district of Scotland. Mr. E. W. Rees was clerk of works.

PROUDFOOT INSTITUTE, MOFFAT, LANARKSHIRE.—On the 19th inst. the Proudfoot Institute, situated in Mansfield-place, Moffat, was opened. The institute consists of on the ground-floor refreshment, smoking, and billiard rooms, with a large recreation hall behind. Upstairs are the reading-hall, library, committee, and game rooms. The building is in the Renaissance style. Mr. Alan B. Crombie, Dumfries, was the architect.

PROPOSED PUBLIC BATHS, GREENOCK.—On the 18th inst., at the meeting of the Greenock Police Board, the Master of Works submitted sketch plans prepared by Mr. Stewart, architect, showing how the site of the vacant ground at 55, 57, and 59, Main-street, extending to over 1,000 square yds., might be utilised for the erection of two swimming-baths and relative adjuncts. He estimated the probable cost of a two-story building, including about twenty private baths and gallery for visitors, at about 7,000*l*. If the building were made only one story and the private baths dispensed with the probable cost would be about 5,500*l*.

EDINBURGH NEW DENTAL HOSPITAL. — The new premises of the Edinburgh Dental Hospital and School in Chambers-street were inaugurated by the Lord Provost recently. The premises have been entirely remodelled internally and fitted up for the work of the hospital and school. In the basement students' cloak-room and lavatories are provided, and a new laboratory has been constructed at the back, with blow-furnace and the various fittings necessary for the mechanical work. The laboratory is 44 ft. long by 22 ft. wide, and is lined with tiles to a height of 6 ft. On the ground floor are the anæsthetic and recovery rooms; also the board and lecture rooms, with professor's cloak-room. On the first floor is the extracting-room and waiting-room for patients; whilst two rooms on this floor are occupied by the Eye Dispensary. In one of these exists some mural decoration, supposed to have been executed during Lord Glenlee's occupation of the house—by a French artist, together with one of the Runcimans, who probably executed the figure work. The festoons and decorative work were executed by the present Mr. Thomas Bonnar's grandfather. The stopping-room occupies the whole of the second floor, which has been converted into one large apartment, the roof being reconstructed to give additional height and top lights, and accommodation being provided for thirty-one operators. Over the back portion of the stopping-room a caretaker's house is provided. The building has been fitted throughout with apparatus for the electric-light, and is heated with hot water, the furnace-room being placed in the basement. There is also telephonic communication from the stopping-room to the laboratory. The whole of the works have been carried out from plans by Messrs. Frank W. Simon & Tweedie, architects, Edinburgh, and have cost about 2,000*l*.

FREE CHURCH, SHERBROOKE, GLASGOW.—The memorial stone of Sherbrooke Free Church has just been laid by Mr. James Campbell, of Tullichewan. The walls are built in low courses of clean-cut rubble, all the dressings being tooled; the roof covered with green Westmoreland slates and red tile ridge. The hall will accommodate 420 persons, the length being 65 ft. by 36 ft. broad, and 40 ft. to ridge. The south gable window is in three divisions, having moulded shafts and carved capitals supporting deeply-moulded tracery. The side windows are three lights in each bay, and all the windows are 8 ft. above the floor. The entrance-porch is at the south-east, the floor being laid with Dumfries red pavement. The seats are of oak, open-backed. The heating is on the low-pressure system. To the north is the vestry, session-room, and church-officer's house. The building will be enclosed with a wrought-iron gate and railing. The total cost, including furnishings, will be about 2,800*l*. The contractors for the building are :—Mason and joiner work, Alexander Eadie & Son, Glasgow; slater-work, J. M'Ouat & Son, Glasgow; plumber-work, William Anderson, Glasgow; plaster-work, Mitchell & Davis, Glasgow; glazier-work, the Scottish National Glass Company. Mr. W. F. M'Gibbon, of Glasgow, was the architect.

COWAN INSTITUTE, PENICUIK, EDINBURGH.—The Institute at Penicuik, erected in terms of a bequest by the late Alexander Cowan, was opened on the 22nd inst. It is built of red freestone from the Moat Quarry, near Carlisle, and is in Scottish baronial style. Covering a total area of 5,320 ft., it includes a hall giving accommodation for 700 persons, a library, gymnasium, billiard-room, chess-room, with retiring-rooms, and janitor's house. It was built to the plans of Mr. Campbell Douglas, Glasgow, under the supervision of Mr. Cavers, Edinburgh, by Mr. James Tait, Penicuik, whilst the wood-work was constructed by Messrs. Cowan & Allan, Glasgow. The estimated cost of the erection was 4,500*l*.

## *SANITARY AND ENGINEERING NEWS.*

SEWERAGE WORKS AT FELIXSTOWE.—The ceremony of turning the first sod in connexion with the main sewerage works for the district of Felixstowe and Walton was performed on the 13th inst. Messrs. Shone & Ault have been the consulting

engineers of the Board, while Mr. G. S. Horton, its Surveyor, has been appointed Engineer of the works. They will be done in contracts. Mr. Fred. Bennett, Ipswich, has secured contract 1. The work will now proceed unhindered.

HEATING AND VENTILATING APPLIANCES, FIFE AND KINROSS ASYLUM.—On the 14th inst., a party of gentlemen left Cupar Station, on the invitation of Mr. William Key, Glasgow. ventilating and heating engineer, to visit the Fife and Kinross Asylum for the purpose of inspecting the ventilating and heating apparatus in connexion with the extensive addition which has just been made to that institution. At the boiler-house (we quote from the *Fife Herald*) are two large boilers, each showing an index of 70 lbs. of steam. These boilers perform the double duty of working the large air-propeller which draws the air into the building, and heating, by means of coils of steam-pipe, the whole air-supply, as well as the water for use in the bath-rooms, &c. Proceeding next to the inlet for the air, which is placed facing the south, it was seen that the entering air passes through an outer warming coil and then through a screen composed of cocoanut fibre. This screen is always kept in a moist condition, and has the effect of cleansing and humidifying the air. By means of an anemometer, Mr. Key then showed that the amount of air propelled into the building was 68,160 cubic ft. a minute, or as much as would renew the atmosphere throughout the entire building ten times an hour. After passing through the screen the air is warmed by coming into contact with coils clustered in batteries within the air-warming chamber. Mr. Key explained that the air passing through this chamber can be reduced in temperature by admitting filtered cold air through by-pass doors made for the purpose—the warm and cold airs mixing while passing through the air propeller. The party next found themselves in one of the main air-ducts, into which the air is directly propelled. On either side of this passage are the openings of flues leading to each room. Secondary warming-coils are placed at the bottom of each flue, so that the air to each room may be warmed to any temperature desired. Several of the rooms were thereafter visited, when it was seen that the volume of air entered so as to be directed to the ceiling, the outlet being only a foot or a foot and a-half from the floor. The whole air in the building being under a slight pressure, no air can enter except by the air-propeller. By means of lighted tapers and a handkerchief placed at the inlets and outlets, Mr. Key showed, to the satisfaction of those present, that there was a continuous stream of air passing through the rooms, without draught. In one of the large day-rooms, which is the very eastmost apartment of the new buildings, and which is 400 ft. from the fan, the passage of air and the temperature were found to be quite equal to those in any other room in the building.

WATERWORKS, TROON, AYR.—On the 20th inst., the ceremony of cutting the first sod on the site of the new reservoir, designed to supply the district and harbour of Troon with gravitation water from the Dundonald Hills, was performed. The reservoir is to be constructed in the glen above the farm-steading of Colennan, and the catchment area extends pretty well across the face of the Dundonald Hills. The works are expected to cost about 12,000*l.* Mr. W. R. Copland, C.E., is the engineer of the works, and the contractor is Mr. Osborne, of Ayr.

REBUILDING OF VAUXHALL BRIDGE.—The London County Council have deposited for next Session the copy of a Bill to empower them to rebuild Vauxhall Bridge upon the site of the existing bridge.—It is proposed that the new bridge be constructed with five openings, the centre span being 155 ft., with a headway of 20 ft. above Trinity high-water. The Bill provides that, prior to the new bridge being commenced, a temporary bridge shall be constructed over the Thames immediately opposite the buildings of the New British Gallery now in course of erection. The time sought within which to complete the new bridge is seven years from the passing of the Act; and for the construction of the whole of the works the Council ask for power to expend 484,000*l.* out of the capital account.

## *FOREIGN AND COLONIAL.*

FRANCE.—The jury of the École des Beaux-Arts have awarded the diploma of architecture to MM. F. Arnaud, Garras, Perraud, Letrosne, Faguer, Hébrard, Proy, Lajoie, and Théophile Leclerc.—M. Uumdenstock, pupil of M. Guadet, has obtained the Saint Agnan-Bourcher prize, awarded to the architectural student of the École des Beaux-Arts who has obtained the largest number of prizes for work sent in.—The committee of the Société des Artistes Français (*i.e.*, the old Salon) has decided, on the report of MM. Dawant and Loviot, to admit examples of applied art and industry into the Champs Elysées Salon.—The members of the Institut have memorialised the Parliamentary Committee in charge of the Budget in favour of the creation of a Museum Fund.—The fine sculptural group by M. Falguière, which figured on the scene at the thousandth representation of "Faust," is to be permanently placed in the museum attached to the Opera-house.—The late M. Saintin, the painter, has left to the École des Beaux-Arts a sum to found an annual prize for the student in painting who has received the largest number of prizes for work sent in during the year.—At a curiosity-shop a fine drawing by Ingres has been discovered, representing a sacred scene.—The Société des Artistes Independants will open its annual exhibition in April next, in the Palais des Arts Libéraux.—M. Guillaume Dubufe is at present completing two allegorical ceiling-paintings and various decorative details for the new Salle à Manger constructed at the Palais de l'Elysée from the designs of M. Chancel.—It is announced that M. Mabelle, the sculptor, whose works attracted great attention at the last Salon—especially the "L'Amour Piqué" which was purchased for the City of Paris, is very ill at the Hospital St. Antoine, and in great poverty.—The casts from the objects found at Delphi by the French School at Athens have been installed at the Louvre, in the old Assyrian Gallery.—A large Hôtel de Ville is to be built at Levallois-Perret.—The jury of the competition opened by the Municipality of Paris for the construction of a new asylum at Ville d'Evrard, have awarded the premiums as follows:—1st premium, M. Morin-Goustiaux; 2nd, M. Dumesnil; 3rd, M. Lebeau; 4th, M. Dauvergne; 5th, MM. Boué and Héraud; 6th, M. Debrie; 7th, M. Albizio; 8th, M. Bourdilliat; 9th, MM. Marcel and Lafon.—The monument which the town of Fontainebleau is to raise on the Place de l'Hôtel de Ville, to the memory of President Carnot, is to consist of a bust on a pedestal surrounded by allegorical figures.—The jury for the competition of a monument to Carnot at Angoulême has awarded the first premium to M. Raoul Verlet. The design comprises a stele supporting a bust of Carnot, towards which a female figure extends a palm and an olive-branch.—The Municipal Council of Paris have authorised the erection, in the Parc Monceau, of a monument to Guy de Maupassant.—Important works in enlargement of the Prefecture at Nice have just been completed. The Prefecture is now connected with the Palais de Justice by a large annexe containing a very fine salle des fêtes in the Renaissance style.—At Royan the construction of a Municipal Casino will shortly be commenced from the designs of M. Redon, a former holder of the prix de Rome.—The Municipality of Blois has opened a competition for the construction of a large covered market in the Place Louis XII.—The death is announced of M. Bassac, city architect at Vanues; and also that of M. Jean Chéry-Laugée, an architectural "expert" adviser in Paris.

FORTHCOMING SWEDISH EXHIBITIONS.—It has now been decided that the Great Industrial and Art Exhibition to be held in Stockholm in 1897, to which we have previously referred, will be located in the so-called "Lion Plain." This plan brings the cost down to 2,056,281 kr. The area is 128,000 square mètres. The receipts being estimated at 1,480,000 kr., a sum of 1,176,281 kr. will have to be found otherwise by the State, the city, &c. For the Industrial Exhibition, to be held next year in Malmö, Herr Wahlin, architect, has designed the *locales*. The main building is T-shaped, the front-age having a length of 123 mètres, and the angle building a depth of 132 mètres. The roof will be pointed, and have a height of 19 mètres, the central portion being crowned with a tower and cupola 46 mètres in height. The area of the Exhibition is estimated at 8,500 square mètres, but 2,000 mètres more can be added.

IMPROVEMENTS IN TENERIFFE.—According to a recent report of the British Consul at Teneriffe, considerable improvements in this island have been commenced, and if the projects in contemplation are carried out, the unrivalled natural attractions of Teneriffe will probably induce many invalids to remain here who have hitherto wintered in Grand Canary, solely on account of the superior hotel accommodation there. The "Pino de Oro" Hotel, within ten minutes' walk of Santa Cruz, commanding a magnificent view, possessing a beautiful garden, and being well out of range of the lower atmosphere, has been opened. Many new buildings with the latest sanitary arrangements are springing up in the suburbs, and waterworks, the electric light, and a refrigerating depot for Australian meat, are likely to be carried out. In Orotava the town and Grand Hotel are lighted by electricity, the motive power for the machinery—Twiss—being from a cascade at the back of the town, and said to be sufficiently powerful to light the whole island.

## *MISCELLANEOUS.*

THE STANLEY-AMSLER PATENT COMPENSATING PLANIMETER.—It is so often necessary to ascertain the area of a portion of ground shown on an Ordnance map or other place that a planimeter has become almost a necessity in the office of an architect or engineer. The best known form is that of J. Amsler-Laffon, the theory of which is so well explained in Minchin's "Uniplanar Kinematics." The instrument is composed of two rods hinged together. The extremity of one of the rods is fixed, and the free end of the other is able to trace out any form of curve, the length of which is only limited by the size of the instrument. As the free end is caused to trace out the boundary of the area required, the revolutions of a graduated roller give a number proportional to the area that has been gone round. It will be seen at once that the accuracy of the apparatus depends on the area being exactly to scale, and should the map or plan have been mounted and shrunk, the readings would no longer give true results. To overcome this difficulty Mr. W. F. Stanley has devised a simple arrangement which insures correct results being obtained, notwithstanding any such shrinkage that might have taken place. A short portion of a continuous scale is placed on the instrument, which is made to read hundredths and sub-divisions of the length of the tracing-arm. Double the percentage of shrinkage of a plan or map gives the number of divisions of the scale engraved on the tracing-arm, to which it is to be set from zero. The planimeter adjusted in this way measures the true area on the shrunk map, if care be taken to follow the outline of the area to be computed with the tracing-point.

CHURCH BUILDING SOCIETY.—The Incorporated Society for Promoting the Enlargement, Building, and Repairing of Churches and Chapels held its monthly meeting on Thursday last week, at the Society's house, 7, Dean's-yard, Westminster Abbey, the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, namely:—Rebuilding St. Michael's Church, Bugaildy, near Knighton, Radnor, 50*l.*; and towards enlarging or otherwise improving the accommodation in the churches at Barlby, near Selby, Yorks, 25*l.*; Canton St. Catherine, near Cardiff, 50*l.*; Orford St. Bartholomew, near Wickham Market, 80*l.*; Penderyn St. Cynog, near Aberdare, 30*l.*; and Saxby St. Helen, near Lincoln, 5*l.* Grants were also made from the Mission Buildings Fund towards building mission churches at Devonport St. Chad, Devon, 20*l.*; and Henshall-with-Heck St. John the Baptist, near Snaith, Yorks, 30*l.* The following grants were also paid for works completed:—Ynysfeid, All Saints, near Pontypridd, 120*l.*, on account of a grant of 150*l.*; Gateshead St. Aidan, 150*l.*; Gateshead Holy Trinity, 50*l.*; Levden, near Colchester, 15*l.* on account of a grant of 40*l.*; Wollaston St. Mary-the-Virgin, near Wellingborough, 15*l.*; Bonby St. Andrew, near Barton-on-Humber, 15*l.*; Marden All Saints, near Devizes, 25*l.*; Cogan Pill the Holy Nativity, near Penarth, Glamorgan, 100*l.*; Stoke-in-Teignhead St. Andrew, Devon, 40*l.*; Wesham Christ Church, near Kirkham, Lancashire, 75*l.*; Allendale St. Peter, Northumberland, 25*l.*; Pontyberem St. John, near Llanelly, 100*l.*; and Plaistow St. Martin, Essex, 50*l.* The society likewise accepted the trust of 100*l.* as a repair fund for St. Nicholas Church, Grafton, near Marlborough, Wilts; and 60*l.* for St. Ive, Cornwall. During the present year grants amounting to 3,965*l.* have been made towards building seventeen new churches, thirteen of which are entirely free and unappropriated, rebuilding seven, and the restoration and improvemement of forty-five existing churches. The carrying out of these works has called from the public the sum of 186,126*l.* The sum of 655*l.* has been voted towards twenty-one mission buildings, and 4,865*l.* has been paid for works completed.

COMMISSION OF SEWERS.—Mr. Alderman Bell (the Chairman) presided at a meeting of the Commission of Sewers on the 18th inst., at the Guildhall. The members of the Common Council for Farringdon Without, and the inhabitants of Tudor-street and neighbourhood, presented a petition in favour of the placing of a noiseless pavement in the said street, Tallis-street, Bouverie-street, and Temple-street. On the motion of Mr. Alderman Treloar, seconded by Mr. Turner, and supported by Mr. Pearse Morrison and Mr. Morton, the petition was referred to the Streets Committee. The Court then read a report from the Finance and Improvement Committee relative to the communication from the London County Council as to the widening of Thames-street, and forming a northern approach to Tower Bridge. The committee recommended that it be intimated in reply that the Commission would be prepared to enter into the arrangements suggested by the Improvements Committee of the London County Council—viz., to carry out the City portion of the said approach to Tower Bridge (estimated to cost 63,050*l.*), the London County Council paying half the cost, and paying also one-third of the cost of the said improvement in Thames-street (estimated to cost 37,500*l.* Mr. Wallace, in moving the adoption of the report, said the offer of the Improvements Committee of the London County Council really meant that, instead of the new body carrying out the old acknowledged policy of the payment of half of the cost of such improvements, there would be a loss so far as the City was concerned of about 10,000*l.* It remained with the Court to adopt the report or to reject it, and he wished to remind his colleagues that the northern approach in question was an improvement which was more of a metropolitan character than of a civic nature. The Chairman then put the motion for the adoption of the report, and it was agreed to.

TRADES TRAINING SCHOOL.—On the 20th inst. the certificates gained at the Carpenters' Company's recent examination in sanitary building construction, and the prizes to the successful students at the company's organised science schools and workshops at Stratford, were distributed in the

# COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

## COMPETITION.

| Nature of Work. | By whom Advertised. | Premiums. | Designs to be delivered. |
|---|---|---|---|
| *New Hospital | Co. Tyrone Hospital Committee | 50*l.* | Jan. 12 |

## CONTRACTS.

| Nature of Work or Materials. | By whom Required. | Architect, Surveyor, or Engineer. | Tenders to be delivered. |
|---|---|---|---|
| *Earthenware Pipes | Belfast Corporation | *Official* | Jan. 1'95 |
| Dyehouse, &c. Gladstone Mills, Earlsheaton, Yorks | " | F. W. Ridgway | Jan. 2 |
| *Road-Making | Southend-on-Sea Corp. | C. T. Copley | do. |
| Reservoirs, Swan-road | Harrogate Corp. | S. Stead | Jan. 3 |
| Residence, Pen-y-lan, Roath Park, Cardiff | J. W. Hibbert | E. Seward | do. |
| Schools, Llandovery, Wales | | J. H. Phillips | do. |
| Wards, Border Counties Home for Incurables, Carlisle | | G. D. Oliver | Jan. 5 |
| Road Works | Blackpool Corp. | J. Wolstenholme | Jan. 7 |
| Street Works | Accrington Corp. | W. J. Newton | do. |
| *Supply of Granite | Beckenham Local Bd. | J. A. Angell | do. |
| Mendip Granite Road Metal | Newbury Corp. | E. A. Stickland | Jan. 8 |
| *Hall Gates Service Reservoir | Leicester Corp. | J. B. Everard | do. |
| *Supply of Materials | Borough of West Ham | L. Angell | do. |
| *Cooking Apparatus, Laundry Fittings, &c. | Borough of Croydon | *Official* | do. |
| *Sewerage Works | Barrow-in-Furness Corporation | do. | Jan. 9 |

## CONTRACTS—*Continued.*

| Nature of Work or Materials. | By whom Required. | Architect, Surveyor, or Engineer. | Tenders to be delivered. |
|---|---|---|---|
| *Carting Slops and Sweepings | St. Marylebone Vestry | *Official* | Jan. 10 |
| *Watering Streets | do. | do. | do. |
| *Removal of House Refuse | do. | do. | do. |
| Additions to Doe Royd, Almondbury, Yorks | | John Kirk & Sons | do. |
| Church, Ribchester, Lancs. | | J. A. Seward | Jan. 12 |
| *Waterworks | Skibbereen Union, co. Cork | R. W. Walsh | do. |
| Sewerage Work, High-street | Hastings Corp. | P. H. Palmer | Jan. 14 |
| Schools, St. John's, Penzance | Rev. E. Townend | Hy. White | do. |
| *Library, Wandsworth Bridge-road | Fulham Public Libraries Commrs. | Billing, Son, & Rowley | Jan. 15 |
| Waterworks, Ferns | Enniscorthy Union | D. Keohler | Jan. 17 |
| *Post Office, Stamford | Com. of H. M. Works | *Official* | Jan. 18 |
| *Extension of Leen Valley Railway | G. N. R. Co. | R. Johnson | Jan. 24 |
| *Scarcroft Board Schools | York School Board | Demaine & Brierley | No date |

## PUBLIC APPOINTMENTS.

| Nature of Appointment. | By whom Advertised. | Salary. | Applications to be in. |
|---|---|---|---|
| *Surveyor and Engineer | Southend-on-Sea Corp. | 300*l.* &c. | Jan. 15 |
| *Literary and Art Director | Preston Corporation (Library Committee) | | Jan. 16 |

***Those marked with an asterisk (*) are advertised in this Number.*** *Competition, p.* iv. ***Contracts, pp.* iv., vi., viii.** *and* xviii. ***Public Appointments, p.*** xvii.

hall of the Carpenters' Company, London-wall, by Sir Albert K. Rollit, M.P. The master of the company, Mr. Niemann Smith, in opening the proceedings, referred to the ancient origin of the Guild, and the efforts they were making in conjunction with the Tylers and Bricklayers', Wheelwrights', Paper Stainers', Plasterers', and Masons' Companies to promote technical education at their institutes at Stratford and in Great Titchfield-street. He was glad to say that their effords had been attended with the most encouraging results. Professor Banister Fletcher also addressed the meeting, remarking upon the thoroughness of the work done by the students. Sir A. K. Rollit, M.P., after the distribution, encouraged the Guild to proceed in their great work and to do something in the matter of original research. He noticed that the Goldsmiths' Company had given a sum of money towards the fund for the discovery of a remedy for diphtheria, and he urged the Carpenter's Guild to do something in the same direction towards narrowing the kingdoms of disease and death. They heard a great deal of the dark ages when the Company was formed, but they were largely indebted to those times for many things, and the City Guilds could do much for the people which individuals could not do for themselves, especially in the matter of laboratories and technical libraries. On the motion of Sir Joseph Frayer, seconded by the Master of the Tylers' Company, a vote of thanks was accorded to Sir A. K. Rollit, and thanks were also voted to the Carpenters' Company before the proceedings closed.

PARTNERSHIP ANNOUNCEMENT.—Mr. Barnes-Williams will take into partnership, from the 1st January, 1895, Mr. Lawton Robert Ford, Fellow of the Surveyors' Institution, and Mr. Alfred Griffin, Professional Associate of the Surveyors' Institution, and the practice will be conducted under the style of Barnes-Williams, Ford, & Griffin.

SANITARY INSPECTORS' ASSOCIATION.—In connexion with the course of Lectures and Demonstrations for Sanitary Officers, arranged by the Sanitary Inspectors' Association, Mr. Edward Tidman, C.E., F.S.I., delivered the second part of his lecture on "Modern House Drainage," at St. James's Hall, Piccadilly, on Saturday last. The lecturer, who again illustrated his observations by numerous diagrams, models, &c., said that probably there was no part of a sanitary inspector's duties that required so much careful thought and attention as the testing of the drains laid or re-laid in his district. He referred to the abandonment by practical men of the old form of pouring oil of peppermint or other strongly perfumed liquid down a closet, but said there were various ways to insert olfactory tests into soil pipes and other fittings in a proper manner. Smoke tests were also useful, but practice had proved they were quite useless to test the hydraulic tightness of drains except very near the surface, and their greatest use was to test the fittings and air-flush. The fault of the majority of forms of smoke machines was that they were too heavy and cumbersome. The water test had come much to the front within the last few years, and it was the only real and absolutely reliable test for drains; its adoption by Local Authorities was a step in the right direction. Young inspectors, however, should be most careful to see that no trick was played upon them by wily, artful builders. The lecturer dealt in some detail with the process of water-testing and with the various kinds of plugs which were useful in carrying out the work. Under the head of drain cleansing and flushing he said that most water companies had very stringent regulations with regard to fitting automatic flushing-tanks, and were very particular about the way they were fitted, in some cases so much so that their use was practically prohibited by the cost. In such cases, and, indeed, in all cases, it was best to have a large tank, with large flushing-pipe, discharging at longer intervals, than it was to have a smaller tank discharging at frequent intervals. The object of the flush was to cleanse the pipes and remove sediment and slimy coating in the interior, and this could only be efficiently secured by getting a full bore discharge. He next alluded to a dual system of drainage, than which, he declared, nothing more unsatisfactory and faulty in action could well be conceived. Combined drainage was just now a source of considerable trouble to the authorities, as in so many cases the combined drain was, according to law, a sewer, in which case the authority must make any amendments to, at any rate, a portion of the drainage system at their own cost. In his opinion combined drainage should, as far as possible, be avoided, but in cases of towns with back streets, or where it was desirable not to pass through or under houses, it was permissible. After dealing with subsoil drainage, Mr. Tidman came to the second head of his lecture, "Sewage disposal other than into sewers: sewage treatment at the outfall." This, of course, meant the disposal of sewage of country mansions and other residences, such as country-houses, farms, and perhaps small villages. The plan of sewage treatment he had found most efficient in practice for a country mansion or residence, was to lay on a scheme of drains, as shown on a plan which he exhibited, and running the sewage through them on alternate days. The solid and floating matters were first caught at a tank or cesspool of limited capacity, and removed from time to time. The liquid sewage was conveyed to one-third of the land, which was subsoil drained with 3-in field-pipes about 6 ft. apart, and laid in open joints on ashes or other porous material. The soil was thus not sodden, and the vegetation took up the manurial products by the roots, improving the crop and causing no nuisances. He had heard absolutely no complaint from any owner where this scheme had been adopted, after years of silent, almost automatic action. In further remarks, the lecturer explained and criticised other systems of treatment of sewage at the outfall. A hearty vote of thanks was afterwards accorded to Mr. Tidman. On Jan. 12 Mr. S. G. Fairchild, R.P.C., will deliver the first of two lectures on "Details of Plumbers' Work."

SPRAGUE'S POCKET DIARY FOR ARCHITECTS.—This useful little pocket-book is re-issued for 1895 in its usual form and size, but the memoranda have undergone some revision, which brings it up to date in regard to such points for example as electrical work, in regard to which notes as to the main points in the principles and nomenclature of electrical engineering are compressed into a page, which is an important addition. The strength of iron columns is more scientifically treated than before, and in the matter of iron construction the strength of steel joists is tabulated as well as that of iron. The pocket-book is a very convenient one in size and make-up, and is now materially improved in its contents.

CARDIFF MASTER BUILDERS' ASSOCIATION.—The annual dinner of the Cardiff Builders' Association was held at the Angel Hotel, Cardiff, on the 13th inst. Alderman David Jones, President of the Association, occupied the chair. The company numbered about 80. After the loyal toast had been duly honoured, Mr. J E Turner gave the toast of "Architects and Engineers." Mr. Seward, in responding as President of the Cardiff and South Wales Architects' Society, referred to the excellent terms upon which architects and builders worked in Cardiff. This was due in a great measure to the practical and tolerant way in which architects were met by contractors. Mr. Henry Gibbon gave the toast of "The Mayor and Corporation of Cardiff." The Mayor briefly replied. Mr. George David gave the toast of the evening—"The MasterBuilders' Association"—and in doing so said he observed that disputes were not so frequent in the building as in other trades, and this he attributed to the strength of the builders' organisation. The President, in responding, stated that in eleven years 12 429 new houses had been built in Cardiff, yielding an average number of 1,138 per year. That meant the addition of a considerable village to the town year after year. Cardiff was one of the most progressive places in the country. The President then dealt with competition among builders in tendering for work, and advocated more careful working out of estimates of costs. Mr. Symonds gave "The Town and Trade of Cardiff," to which Mr. F. S Lock and Mr. W. Morgan responded, and the toasts of "The Visitors" and "The Chairman" concluded the list.

THE CRYSTAL PALACE SCHOOL OF PRACTICAL ENGINEERING.—The annual distribution of certificates to the students of this school took place on the 21st inst. in the school buildings near the southern tower of the Crystal Palace. Mr. J. H. Greathead, C.E., presided. Mr. R G. Hodson, Superintendent of the Palace School of Art, Science, and Literature read the examiners' reports, which showed that the students now number 100. The Chairman, in the course of an address to the pupils, congratulated them upon the choice they had made of a profession, and said that the occupation of engineering was one in which above all others useful work could be done by those who really had a taste for it. Students in these days had opportunities of attaining proficiency which did not exist when he became an engineer. It was a most useful thing for a young man before going into an engineer's office to get a good grounding in practical work. Every engineer at the present time had to be capable of doing a good variety of work, and must master a great many branches of knowledge. There were great opportunities for engineers who had fitted themselves for undertaking really serious work, and his advice to all those who were starting upon an engineering career was to fit themselves for taking up any work that might come in their way at a later stage. Hard work was the only road to success, which must, in engineering, always depend upon the perfection of details. The certificates having been distributed by the Chairman, Mr. G. T. Rait, on behalf of the Crystal Palace

Company, thanked the examiners for their services, and Mr. S. R. Lowcock, C.E., and Mr. J. N. Shoolbred, C.E., briefly replied. Mr. Shoolbred, in the course of his remarks, drew attention to the development which had taken place in electrical work during the last fifteen years, and said that something like 20,000,000*l.* had been profitably invested in electrical enterprises, excluding telephones and telegraphs, in the United Kingdom, mainly within the last five years, while something like 115,000,000*l.* had been invested in such enterprises on the Continent of Europe. Mr. J. W. Wilson, C.E., Principal of the Engineering School, then made a few remarks to the students, dwelling upon the necessity both of integrity and application on the part of those who wished to get on in life, and a vote of thanks to the Chairman brought the proceedings to a close.

## *CAPITAL AND LABOUR.*

STATE OF EMPLOYMENT IN NOVEMBER.—Judged by the returns relating to employment received by the Labour Department of the Board of Trade, says the *Labour Gazette*, the slight improvement noticed in the condition of the labour market for September and October has been maintained during the month of November. Sixty-two trade unions, with an aggregate membership of 362,091, have made returns to the Department, showing the total number of unemployed members at the end of November to be 25,178, or 7 per cent., compared with 7·4 per cent. in the fifty-seven unions from which returns were received for October, and 7·2 per cent. in the thirty-two unions making returns for November, 1893. The Steel trade on the whole has remained stationary. Smelters are well employed in most districts, but founders are not so busy, and in some cases are on short time. Employment in the Engineering and kindred trades has somewhat improved during the month, and the percentage of unemployed members of unions connected with these trades has fallen from 9·5 to 8·7 since the end of October. Owing to seasonal causes, some falling off in employment in the various branches of the Building trades is reported, particularly among the Painters. The percentage of unemployed in unions making returns was increased from 3·8 in October to 4·2 in November, which compares with 3·7 in November, 1893. Little change has taken place during the month in the condition of the Furnishing and Woodworking trades. The proportion of unemployed in unions connected with these trades has fallen from 4·6 per cent. in October to 4·5 per cent. in November. In London the Building trades, particularly the carpenters and joiners and the plumbers, show some improvement compared with last month, 153 branches of four unions, with an aggregate membership of 11,166, returning 454 (or 4·0 per cent.) as unemployed, compared with 4·9 per cent. in October and 4·6 per cent. in November, 1893. The Bricklayers report trade as "moderate," the masons, plasterers, and plumbers as "dull," and the painters as "bad."

## *LEGAL.*

### THE LONDON COUNTY COUNCIL AND THE BUILDERS.

ON the 21st inst. Mr. Curtis Bennett, sitting at the West London Police-court, gave his decision in a case of considerable interest to builders, which has been before the courts upwards of two years. In 1892 a building at the corner of Kensington Court, was erected to a height of 70 ft., and after the building had been completed proceedings were taken against the builder for having exceeded the height prescribed by the Act of Parliament, the ground being that Kensington Court was only 45 ft. 7 in. wide, and that it being a road of less width than 50 ft., its width must not be exceeded in the height as a building abutting upon it. For the defence it was stated that the building fronted Kensington-road, the width of which is 90 ft., and that it was by the width of that road that the height must be measured. It was also said that when the present owner acquired the property it consisted of a house in the centre of a terrace. He pulled the old house down, and was proceeding to erect his new building when his neighbour made a new road 45 ft. 7 in. wide by the side of his property. Had that road been 50 ft. in width the owner would then have been entitled to build to the height of 90 ft. It was pointed out that if the County Council's contention was upheld the owner would suffer pecuniary loss through the action of his neighbour. Mr. Horace Avory (instructed by Mr. Chilvers) represented the London County Council. Mr. Dickens, Q.C., defended. In the first instance the summons against the builders was dismissed by the magistrate, but upon the case being taken to the Queen's Bench it was remitted to him to impose a penalty, and the defendants were then ordered to pay 40s. a day for the period covered by the summons. As the builders had given up possession of the premises, further proceedings were against the owner. The summons in that case also was dismissed, but the Court of Queen's Bench decided that he was liable for continuing penalties, and referred the case back to the magistrate.

Mr. Avory now asked his worship to impose a substantial penalty for each of the sixty-seven days covered by the summons, in order that it might not be worth the owner's while to continue the offence.

Mr. Curtis Bennett said that he and the judges were all agreed that it was very hard law, and Parliament had evidently come to the same conclusion, for in the new County Council Act the clause had been amended in such a way that when a building was erected on a corner plot, and abutted two streets, its height should be regulated by the wider, so far as it fronted that, and for a distance of 40 ft. along the narrower street. Under the circumstances he thought it sufficient to impose a penalty of 3s. a day for the sixty-seven days, with five guineas costs. He added that he had before suggested that this was a case in which some arrangement should have been arrived at, and remarked that it should not be taken that if any further proceedings were instituted he should impose even so high a penalty.

## RECENT PATENTS:

### ABSTRACTS OF SPECIFICATIONS.

21,971.—SASH-LINES, &c.: *H. S. Blake and others*—To retain the sash-line a tube is, according to this patent, fitted in the frame, and a cup to hold the knotted end of the line. A plate with a metal parting-bead fits over the opening in side of frame, which, being removable without taking out the sash or parting-bead, allows ready access to the weights.

22,730.—RUST PREVENTIVE PAINTS: *A. Buecher* (Heidelberg)—In this mixture, designed as a paint to preserve iron or other metal from rusting, finely-divided zinc and calcium carbonate, Tripoli, colothar, vegetable charcoal, &c., are the principal ingredients. It is claimed that after the treatment by this composition iron and steel remain free from rust, and even polish better because during the removal of the paste its polishing ingredients come into action.

22,870.—WINDOWS: *T. M. Houghton.*—This patent applies to windows with sliding sashes—lines and weights, &c.—and is designed to allow the sashes to be opened inward and cleaned or dealt with from the inside of the room. Mechanical methods for effecting this are described in the specification.

23,100.—CHIMNEY POTS: *F. Dye and another.*—To prevent down draught a chimney pot is described having a combination of tube and cylinder placed around the upper end of the chimney pot proper, with a disc or baffle specially arranged in position.

586.—CEILING GIRDERS: *A. A. Chocarne.*—Because plaster does not adhere well to iron, a series of grooves are made upon the surface of the girder so that the plaster shall adhere to the iron as well as to any other cavitied surface.

1,631.—WINDOW AND DOOR PROTECTOR: *W. B. Osborn.*—This is a small protector made with spikes and an inclined plane or wedge-shaped frame, designed to prevent burglars entering.

11,980.—WINDOW-SASHES, &c.: *J. Lakin and another.*—The window-frame is made in the ordinary way, raised and lowered by a cord or lever attached to the window. To prevent dust or draught a hinged shutter is made to accommodate itself to any position the window may be in.

14,273.—DOOR-KNOBS, &c.: *T. P. Stanyon.*—The spindle of the door-knob is a bifurcated one, with a number of transverse grooves. The knob slides on the spindle, and is secured at any point by means of a key passing through the groove and spindle and secured by a screw in the neck of the knob passing through it.

### NEW APPLICATIONS FOR LETTERS PATENT.

DECEMBER 10.—23,966, D. McNish, Bath Lavatory Basin.—24,000, E. Benninghoven, Hand-saws and other Cutting Tools.—24,011, E. Cowcher, Screws.

DECEMBER 11.—24,030, S. Trawley, Sash-fasteners.—24,056, J. Barnet, Adjustable Level, or Inclined Floor.—24,077, F. Richards, Fastenings for Door-knobs, &c.—24,093, G. Church and G. Ettenger, Joints and Connexions for Metallic Tubular Structures, such as are used for the under-frames of girders and frames for bridges and buildings.

DECEMBER 12.—24,139, J. Bromilow, Utilising Slag and Coal Ashes to Produce Substitutes for Brick, Stone, and Concrete.—24,165, A. Buckland, Securing Doors.—24,171, W. Youlten, Weather Checks.

DECEMBER 13.—24,230, R. Taylor and J. Green, Gully-Traps and Gratings.

DECEMBER 14—24,304, J. Donnelly, Strengthening the Sliding-sashes of Windows.—24,339, F. Myerson and T. Lane, Pots, Tops, or Cowls for Chimneys or Ventilating-shafts.—24,346, E. Sherman, Draught Excluders.—24,382, L. Janlit, Flushing-tanks.—24,383, L. Janlit, Automatic Flush-tanks.

DECEMBER 15.—24,428, A. Smith, Stoves or Fireplaces.—24,435, H. Kühn, Door-closer with Automatic Lubricator.—24,436, J. Eastham, Sash Fastener.

### PROVISIONAL SPECIFICATIONS ACCEPTED.

21,384, C. Mannon, Portable Door Fasteners.—22,152, D. Arnot, Windows.—22,260, R. Evans, Manufacture of Size.—22,632, H. Lake, Fastenings for Doors.—22,674, R. Deam, Flushing Cisterns for Water-closets.—22,816, W. Bailey, Flushing Cisterns.—22,916, A. Clare, Mounting Grindstones.—23,063, E. Hallam, Firegrates, Stoves, &c. 23,107, W. and J. Elliott, Firegrates or Stoves.—23,151, W. Taylor, Window-sashes.—23,382, J. and W. Starley, Tread Surfaces applicable to Steps, Stairs, Gangways, &c.

### COMPLETE SPECIFICATIONS ACCEPTED.

*(Open to Opposition for Two Months.)*

167, J. Bell, Water Waste Preventer.—3,287, J. Spencer, Domestic Stoves or Fireplaces.—3,708, J. Mair, Window sashes.—15,755, J. Elliott, a Stone Composition for repairing any Natural Stone and refacing Cement Floors, Steps, &c., also for making Imitation Stone and Bricks, of any colour.—18,671, V. Lennard, Disinfecting Apparatus for use in Water-closets, Urinals, Lavatories, &c.—21,654, W. Wheeler, Syphon Flushing Cistern.—21,904, S. Smith, Gates

## MEETINGS.

THURSDAY, JANUARY 3.

*Civil and Mechanical Engineers' Society.*—Mr. A. W. Ackermann on "Caissons and Dock Gates." 7 p.m.

FRIDAY, JANUARY 4.

*Architectural Association.*—Mr. C. G. Harper on "Architectural Illustration." 7.30 p.m.

## PRICES CURRENT OF MATERIALS.

| TIMBER. | | |
|---|---|---|
| Greenheart, B.G. ton | 8/0/0 | 0/0/0 |
| Teak, E.I. ..load | 10/0/0 | 16/0/0 |
| Sequoia, U.S. ft. cu | 1/10 | 2/2 |
| Ash, Canada load | 3/0/0 | 4/5/0 |
| Birch, do. | 3/0/0 | 4 5/0 |
| Elm, do. | 3 15/0 | 5 0/0 |
| Fir, Dantsic, &c. | 1/10/0 | 3 0/0 |
| Oak, do. | 2/15/0 | 4/15/0 |
| Canada | 5 5/0 | 6/15/0 |
| Pine, Canada red | 2/15/0 | 3 5/0 |
| Do. Yellow | 3/10/0 | 5/15/0 |
| Lath, Dantsic, fath | 4/10/0 | 5/10/0 |
| St. Petersburg.. | 5/0/0 | 6/10/0 |
| Wainscot, Riga, &c., log | 2/15/0 | 5/0/0 |
| Odessa, crown.... | 2/15/0 | 5/0/0 |
| Deals, Finland 2nd & 1st std 100 | 7/0/0 | 9/0/0 |
| Do. 4th & 3rd .. | 7/0/0 | 8/0/0 |
| Do. Riga ..... | 7/0/0 | 8/10/0 |
| St. Petersburg, 1st yellow .... | 9/10/0 | 12/0/0 |
| Do. 2nd yellow | 7/10/0 | 9/0/0 |
| Do. white..... | 8/0/0 | 10/10/0 |
| Swedish..... | 7/0/0 | 15/10/0 |
| White Sea..... | 6/10/0 | 14/0/0 |
| Canada, Pine 1st | 21/0/0 | 24 10/0 |
| Do. do. 2nd.... | 16 12/0 | 17 12/0 |
| Do. do. 3rd, &c. | 7/10/0 | 10/10/0 |
| Do. Spruce, 1st | 8/10/0 | 10/0/0 |
| Do. do. 3rd & 2nd ..... | 6/10/0 | 7/10/0 |
| New Brunswick | 6/0/0 | 7/0/0 |
| Battens, all kinds | 5/0/0 | 21/0/0 |
| Flooring boards, sq., 1 in. prep. 1st ..... | 0/9/6 | 0/14/0 |
| Do. 2nd..... | 0/7/0 | 0/11/6 |
| Other qualities— | 0/5/0 | 0 7/0 |
| Cedar, Cuba .. ft. | /3 | /4 |
| Honduras, &c. | /3 | /4½ |
| Mahogany, Cuba | /3 | /6 |
| St. Domingo, cargo av. | /3 | 1/6 |
| Mexican do. do. | /3 | /4 |
| Tobasco do. do. | /3 | /6 |
| Honduras do. .. | /3½ | /5½ |
| Box, Turkey ton | 4/0/0 | 13/0/0 |
| Rose, Rio..... | 7/0/0 | 18/0/0 |
| Bahia ..... | 6/0/0 | 17/0/0 |
| Satin, St. Domingo..... | 0/0/5 | 0/1/0 |

| TIMBER (*continued*). | | |
|---|---|---|
| Satin, Porto Rico | 0/0/6 | 0/1/6 |
| Walnut, Italian .. | 0/0/3½ | 0/0/7 |
| **METALS.** | | |
| Iron—Pig, in Scotland .....ton | 2/1/11 | 0/0/0 |
| Bar, Welsh, in London ..... | 5/12/6 | 5/15/0 |
| Do. do. at works in Wales..... | 5/2/6 | 5/5/0 |
| Do. Staffordshire, in London..... | 6/0/0 | 6/12/0 |
| COPPER—British cake and ingot | 43 0/0 | 43/5/0 |
| Best selected .. | 43/15/0 | 44/5/0 |
| Sheets, strong .. | 51/10/0 | 0 0/0 |
| Chili, bars .... . | 41/2 6 | 41/7 6 |
| YELLOWMETALlb | 0/0/4½ | 0/0/4¾ |
| LEAD—Pig, Spanish.....ton | 9/11/3 | 9/12 6 |
| English com. brands..... | 9/12 6 | 9/13/9 |
| Sheet, English, 6 lbs. per sq. ft. and upwards.... | 10/15/0 | 11/0/0 |
| Pipe..... | 11/15/0 | 0/0/0 |
| ZINC—English sheet.....ton | 18/10/0 | 19/0/0 |
| Vieille Montagne ..... | 19/10/0 | 0/0/0 |
| TIN—Straits..... | 62/15/0 | 63/5/0 |
| Australian..... | 63/0/0 | 63/10/0 |
| English Ingots.. | 65/10/0 | 66 10/0 |
| Banca ..... | 65/0/0 | 65/10/0 |
| Billiton ..... | 64/0/0 | 64 10 0 |
| **OILS.** | | |
| Linseed .....ton | 19/17/6 | 20/5/0 |
| Cocoanut, Cochin | 26/10/0 | 0/0/0 |
| Do. Ceylon ..... | 24/10/0 | 0/0/0 |
| Palm, Lagos..... | 25/0/0 | 0/0/0 |
| Rapeseed, English pale ..... | 21/0 0 | 0/0/0 |
| Do. brown..... | 19/7 6 | 19 10/0 |
| Cottonseed ref.... | 17/15 0 | 18 10/0 |
| Oleine..... | 21/10/0 | 24/0/0 |
| Lubricating, U.S. | 4/0/0 | 5/0/0 |
| Do. refined ..... | 5/0/0 | 12/0/0 |
| TAR—Stockholm barrel | 1/1/0 | 0 0/0 |
| Archangel..... | 0 13/0 | 0 0/0 |

## TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursday.*]

ABERDARE.—For the erection of thirty-three dwelling-houses, Gadlys. Mr. C. H. Elford, architect, 34, Cannon-street, Aberdare:—

| | | | |
|---|---|---|---|
| Thomas Richards | £178 15 | R. A. Davies | £137 12 |
| Emanuel Cross | 166 0 | David McCarthy, Pontypridd * | 130 0 |
| John Rees | 159 0 | | |
| Samuel Hawkins | 148 0 | | |

* Accepted.

[Bricks found by proprietor and not included in these prices.]

ABERDEEN.—For the construction of pipe-sewers, with ventilating manholes, &c., Bonnymuir and Hosefield, for the Town Council. Mr. W. Dyack, Burgh Surveyor, Town House, Aberdeen:—

R. McKay, Aberdeen ..... £200 18 10

BARRY DOCK (Glam.).—For additions to school buildings, Holton-road, for the U.D. School Board. Mr. George Thomas, architect, Queen's-chambers, Cardiff. Quantities by the architect:—

| | | | |
|---|---|---|---|
| H. Gibbon..... | £3,377 12 0 | E. F. Richards..... | £2,834 10 0 |
| W. Symonds..... | 3,200 0 0 | E. R. Evans & Bros. | 2,806 3 4 |
| H. Davies ..... | 3,173 0 0 | Geo. Rutter, Barry * | 2,777 0 0 |
| Lloyd & Tape..... | 3,109 0 0 | F. Small † ..... | 2,532 0 0 |
| D. Davies ..... | 2,915 0 0 | | |

* Accepted. † Withdrawn.

BURE (Hants).—For building new shooting-box at Bure Farm, near Christchurch, for Major Stuart Wortley. Messrs. Lawson & Donkin, architects, Bournemouth:—

| | | | |
|---|---|---|---|
| F. J. Luxton..... | £2,134 5 9 | J. W. Lucas ..... | £1,789 0 0 |
| Entwistle & Cox.... | 1,960 0 0 | Wm. Hoare ..... | 1,687 0 0 |
| George & Harding . | 1,933 0 0 | W. J. Chinchen, East Cliff Works, Bournemouth * .. | 1,600 0 0 |
| Frampton & Sons .. | 1,900 0 0 | | |
| McWilliam & Son .. | 1 890 0 0 | | |
| Jenkins & Son..... | 1,862 0 0 | | |

* Accepted.

COLERAINE (Ireland).—Accepted for the construction of water and sewerage works, Portstewart, for the Union Guardians:—

M. Green, 244, York-street, Belfast ..... £2,309 2 11

LONDON.—For additions to wards at the Union House, Plumstead, for the Union Guardians. Mr. J. O. Cook, architect, 1, Eleanor-road, Woolwich. Quantities by Mr. C. W. Brooks, 63, Finsbury Pavement, E.C.:—

| | | | |
|---|---|---|---|
| Chinchen ..... | £1,160 | J. Otway ..... | £1,037 |
| Hodgin ..... | 1,110 | W. Neil ..... | 1,035 |
| W. Martin..... | 1,098 | C. Kitley ..... | 994 |
| E. Proctor..... | 1,092 | G. Munday & Son ..... | 993 |
| T. White & Sons ..... | 1,082 | W. Collinson ..... | 984 |
| Williams & Sons..... | 1,050 | W. Pavey ..... | 955 |
| Mutton & Wallis..... | 1,049 | T. J. Burden, Maidstone * | 940 |

* Accepted.

LONDON.—For new road and surface drainage, Ransom's Dock, Battersea, S.W.:—

B. Cooke & Co. ..... £250

PEMBROKE (South Wales).—For additional class-rooms, &c., to school buildings, East End, Pembroke, for the School Board of the Borough of Pembroke. Mr. John E. P. Ladd, architect, Main-street, Pembroke:—

| | | | |
|---|---|---|---|
| J. R. Thomas ..... | £694 16 | Davis & Morgans, Pembroke (accepted) ..... | £575 0 |
| C. Young ..... | 647 0 | | |

RAWMARSH (Yorks.).—For the construction of two new streets, Ryecroft, for the Local Board. Mr. J. W. Wetherill, Surveyor to the Board:—

*South-street.*

| | | | |
|---|---|---|---|
| R. Morton ..... | £398 15 0½ | B. Bool, Parkgate* .. | £385 6 10 |

*Main-street*

| | | | |
|---|---|---|---|
| R. Morton ..... | 377 18 1 | B. Bool, Parkgate* .. | 371 8 10 |

* Accepted.

ST. ALBANS.—For re-arranging the sewage-disposal works, Wheathampstead, for the Rural Sanitary Authority. Mr. T. Foster Woodman, F.S.I.:—

| | | | |
|---|---|---|---|
| *Ground Work.*—O. Odell..... | £123 0 0 | | |
| " Sparrow & Son, Harpenden * ..... | 98 10 0 | | |
| *Pumping Gear.*—A. H. Mutton, Hemel Hempstead * .... | 42 12 6 | | |

* Accepted.

ST. ALBANS.—For house and stabling for Mr. J. Frazer, St. Albans:—

| | | | |
|---|---|---|---|
| Bushell ..... | £2,275 | Whibley & Jervis, St Albans * ..... | £1,8 |
| Miskin ..... | 2,175 | | |
| Dunham..... | 2,015 | | |

* Accepted.

LONDON.—For broken granite and granite spalls, 1895-96, for the Vestry of Paddington. Mr. George Weston, Surveyor:—

| | Broken Granite. Price per Cubic Yard. | Broken Granite. Price per Ton. | Granite Lumps. Price per Ton. |
|---|---|---|---|
| | s. d. | s. d. | s. d. |
| *Bardon Hill.* | | | |
| Ellis & Everard, delivered at Kilburn, or Queen's Park, Railway Depots | Not priced. | 10 3 | 8 6 |
| Whitwick Granite Co., Ltd. (any railway depot in London) (from Whitwick Quarries) | 10 6 | 10 0 | 8 4 |
| *Basalt.* | | | |
| J. L. Lyon & Co., delivered at side of Parish Wharves | 14 6 | 12 1 | Not priced. |
| *Belgian.* | | | |
| L. Sommerfeld, delivered at side of Parish Wharves | 13 6 | Not priced. | do. |
| *Bierghes.* | | | |
| Kaltenbach & Schmitz, delivered at side of Parish Wharves | 13 0 | do. | do. |
| *Clee Hill.* | | | |
| Clee Hill Dhu Stone Co., delivered at Paddington, Queen's Park, or Kilburn Railway Depots. | 16 11 | do. | 11 8 |
| *Enderby.* | | | |
| A. & F. Manuelle, delivered at Kilburn Railway Depot | 13 8 | do. | Not priced. |
| Narborough & Enderby Granite Quarries Co. (name of railway depot not stated) | 14 0 | 12 9 | do. |
| Nowell & Robson, delivered at Kilburn or Queen's Park Railway Depots | 13 6 | 12 4 | 10 3 |
| Rawson & Rawson, delivered at Paddington or Kilburn Railway Depots | Not priced. | 10 6 | 9 3 |
| Tildesley, Shepherd, & Mabson, delivered at Kilburn or Queen's Park Railway Depots | 13 3 | 12 0 | 9 9 |
| S. Trickett & Sons, delivered at Kilburn Railway Depot | 13 8 | Not priced. | Not priced. |
| G. Wimpey & Co. (name of railway depot not stated) | 14 1 | 12 10 | do. |
| *Guernsey.* | | | |
| R. L. & J. Fennings, delivered at side of Parish Wharves | 19 2 | 15 10 | 11 1 |
| W. & J. R. Freeman, " " " | 18 7 | 15 0 | 11 0 |
| W. Griffiths, " " " | 18 10 | 15 6 | 10 9 |
| A. & F. Manuelle,* " " " | 18 0 | 14 7 | 10 4 |
| J. Mowlem & Co., " " " | 18 8 | 15 0 | 10 8 |
| W. Muir & Co., " " " | 18 0 | 15 4 | Not priced. |
| Nowell & Robson, " " " | 18 5 | 15 0 | 10 8 |
| L. Sommerfeld, " " " (quarried in Alderney) | 17 5 | 14 7 | 10 5 |
| S. Trickett & Sons, " " " | 19 0 | 15 11 | 10 11 |
| *Hart's Hill.* | | | |
| H. N. Tyre, delivered at side of Parish Wharves | 11 6 | 10 0 | 8 6 |
| " delivered at Kilburn or Paddington Railway Depots | 11 6 | 10 0 | 8 6 |
| *Markfield.* | | | |
| Van Praagh & Co., delivered at Kilburn Railway Depot (from Cliffe Hill Quarries) | Not priced. | 11 0 | 9 6 |
| *Narborough.* | | | |
| A. & F. Manuelle, delivered at Kilburn Railway Depot | 14 5 | Not priced. | Not priced. |
| Narborough and Enderby Granite Quarries Co. (name of Railway Depot not stated) | 14 9 | 13 5 | " |
| Nowell & Robson (name of Railway Depot not stated) | 14 3 | 13 1 | 10 3 |
| Tildesley, Shepherd, & Mabson,* delivered at Kilburn or Queen's Park Railway Depots | 14 0 | 12 9 | 10 0 |
| S. Trickett & Sons, delivered at Kilburn Railway Depot | 14 5 | Not priced. | Not priced. |
| G. Wimpey & Co. (name of Railway Depot not stated) | 14 7 | 13 3 | " |
| *Quenast.* | | | |
| C. M. Manuelle, delivered at side of Parish Wharves* | 14 6 | 12 4 | " |

CONTRACT PRICES, 1834-95.

| | | | |
|---|---|---|---|
| *Narborough.* | | | |
| Tildesley, Shepherd, & Mabson, delivered at Kilburn Railway Depot | 14 0 | — | — |
| *Guernsey.* | | | |
| A. & F. Manuelle, delivered at side of Parish Wharves | 18 7 | — | — |

* Accepted.

WAKEFIELD.—Accepted for the construction of drainage works, West Ardsley, for the Union Rural Sanitary Authority. Mr. Frank Massie, C.E., Tetley House, Kirkgate, Wakefield:—

*West Ardsley Contract, No. 4.*

H. Barraclough, Brighouse ..... £438 10 10

*Alverthorpe Drainage Contract, No. 2.*

T. & G. Wilson, Wakefield ..... £707 4 2

*Inspector's House, Outwood, near Wakefield.*

*Excavating, Bricklaying, and Masonry.*—W. Richardson, Outwood ..... £500 6 11
*Joinery and Carpentry.*—W. Richardson, Outwood .... 126 14 3
*Plumbing, Painting, and Gas-fitting.*—G. A. Beaumont, Lofthouse Gate, near Wakefield ..... 50 10 0
*Plastering.*—W. Hesling, Outwood ..... 27 9 1
*Slating.*—Pickles Bros., Leeds ..... 54 6 0

WEST MOORS (Dorset).—For the erection of a house for the curate, for the Vicar of Verwood. Messrs. Adye & Adye, architects, Town Hall-chambers, Bradford-on-Avon:

| | | | |
|---|---|---|---|
| W. Griffin | £3,943 0 | A. E. Bigwood & Co. | £3,389 0 |
| Webb & Co. | 3,873 0 | Geo. Moore | 3,342 5 |
| Merrick & Son | 3,822 0 | Lindsay & Francis | 3,173 0 |
| Mould Bros. | 3,679 0 | Hayward & Wooster, Bath* | 3,099 0 |
| Burt & Vich | 3,672 0 | Robt. Ellock | 2,945 0 |
| W. E. Alexander | 3,672 0 | Wm. King | 2,292 0 |
| H. Barrow | 3,433 0 | | |
| Jenkins & Son | 3,393 0 | | |

* Accepted.

WHITCHURCH (Shropshire).—Accepted for the erection of a house in the Doddington-road, for the Trustees of the late Mr. W. T. Lamb. Mr. Frank E. Smee, architect, 12, West Smithfield, E.C. Quantities by Messrs. Goodchild & Son, 81, Finsbury-pavement, E.C.:—

George Dodd, Whitchurch (no competition) ..... £800

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218 and 220, HIGH-STREET, BOROUGH, S.E.

LIVERPOOL:
6 and 8, HATTON GARDEN.

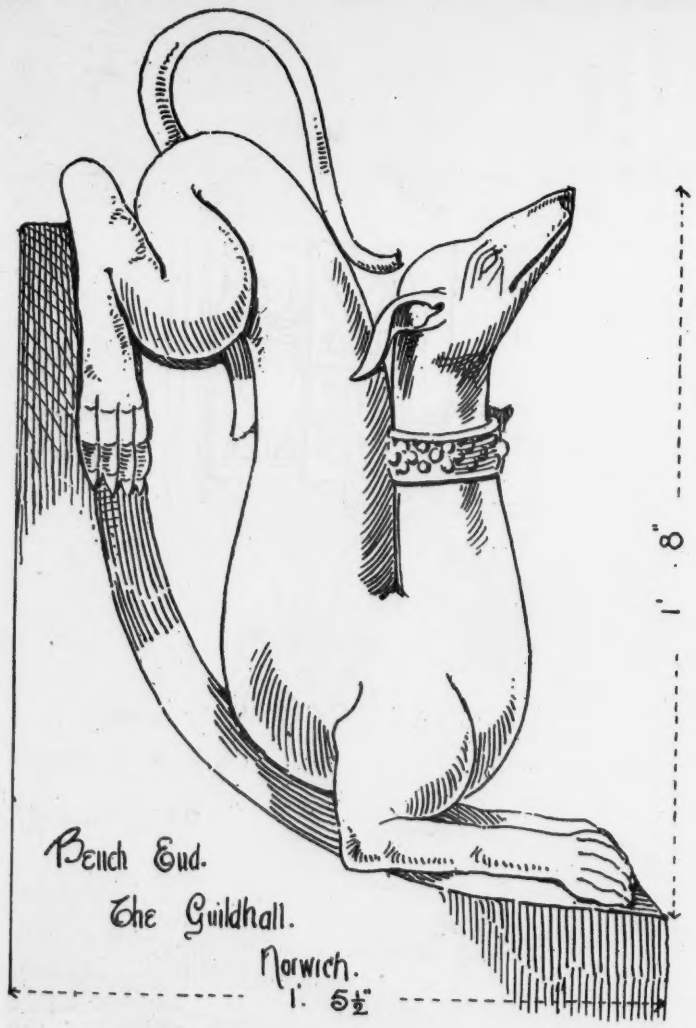
GLASGOW:
47 and 49, ST. ENOCH-SQUARE.

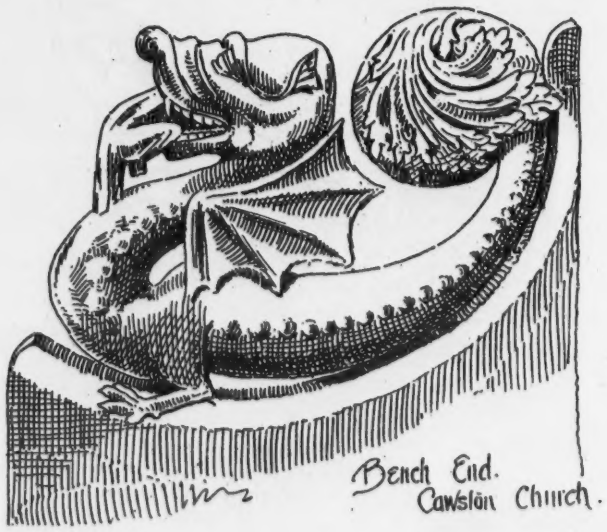
# Wayside Notes in East Anglia

by

John Shewell Corder, Arch.t.

## BENCH ENDS





Blythburgh Ch. Suffolk.

Bench End.
Cawston Church.

Blythburgh Ch. Suffolk.
Bench End.
Chancel

Quarterly
Swillington
&
Ross.

floor.

Norwich
Cathedral.

Martham Ch. Norfolk.
Poppy head. 11½ × 7"
S. Aisle.

Carving under Miserere
Cley. Ch. Norfolk.

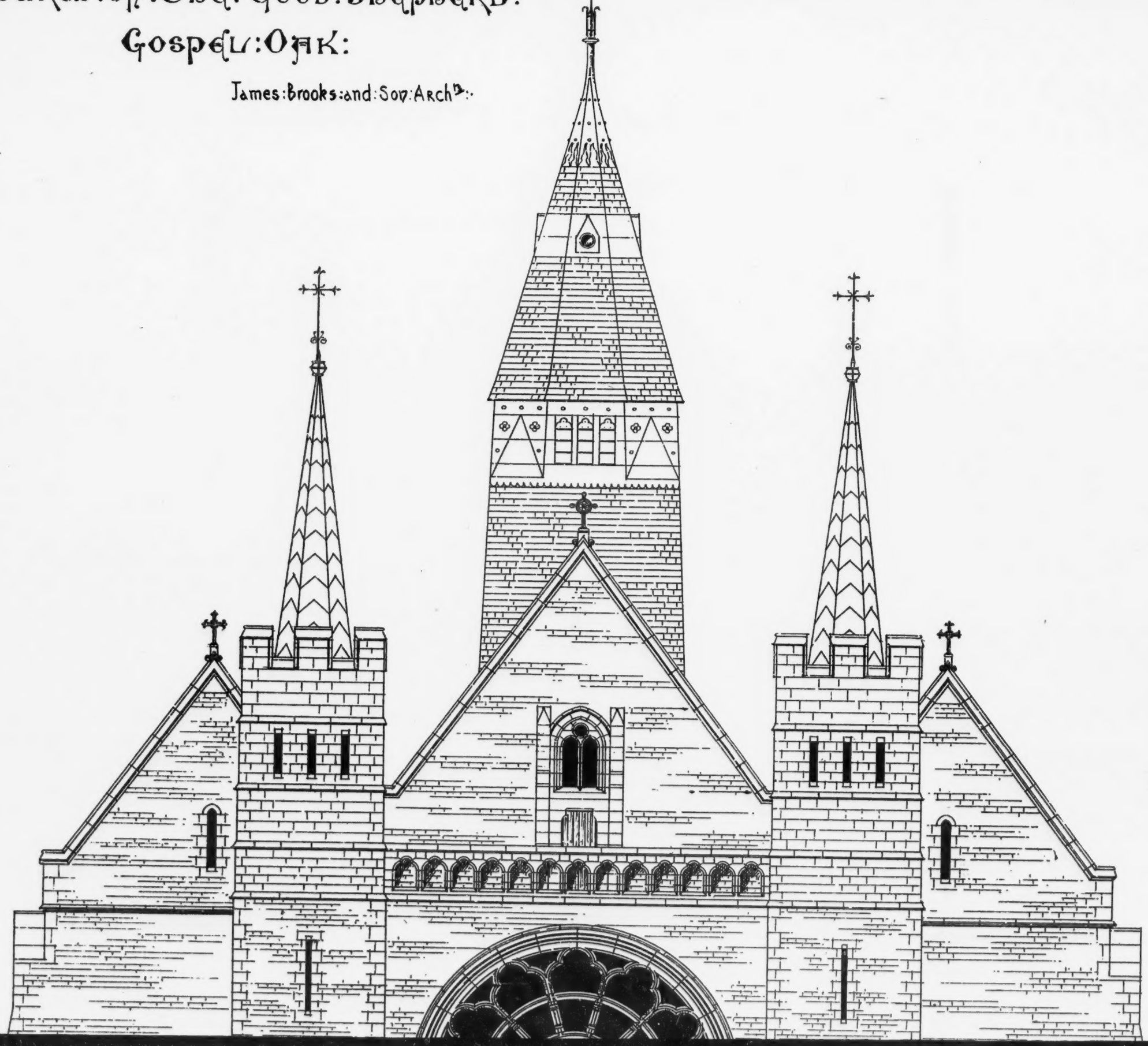
Cawston Ch.
Norfolk. Ch.
Bench End.

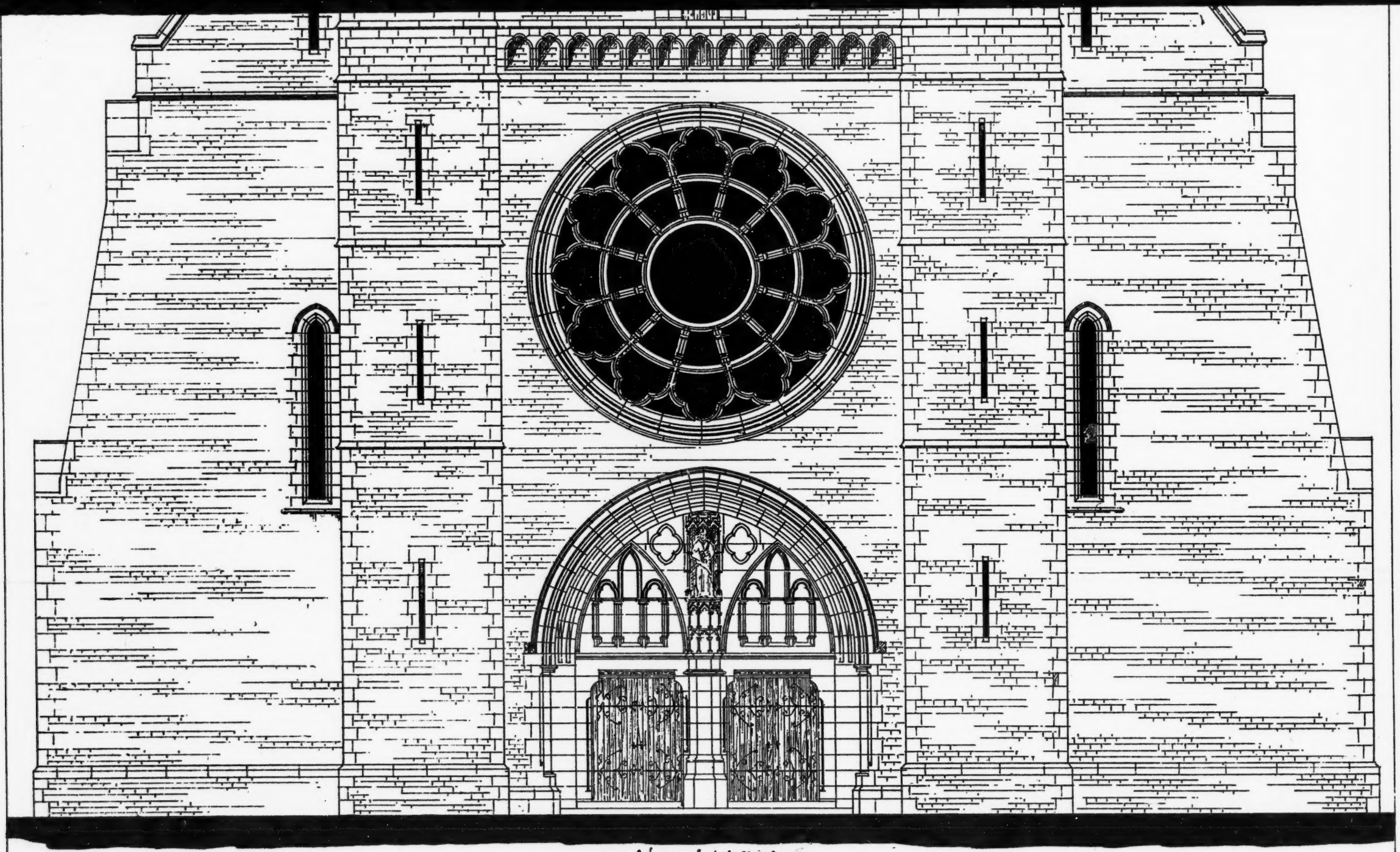
floor line.

PHOTO-LITHO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

# Church: of: The: Good: Shepherd:
## Gospel: Oak:

James: Brooks: and: Son: Arch^ts:





WEST : ELEVATION

SCALE

PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE. E.C.

*Royal Academy Exhibition, 1894.*

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# Church of the Good Shepherd Gospel Oak

James Brooks and Son Archts.

EAST ELEVATION

SCALE 1/8 INCH TO 1 FOOT

PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE. E.C.

*Royal Academy Exhibition, 1894.*

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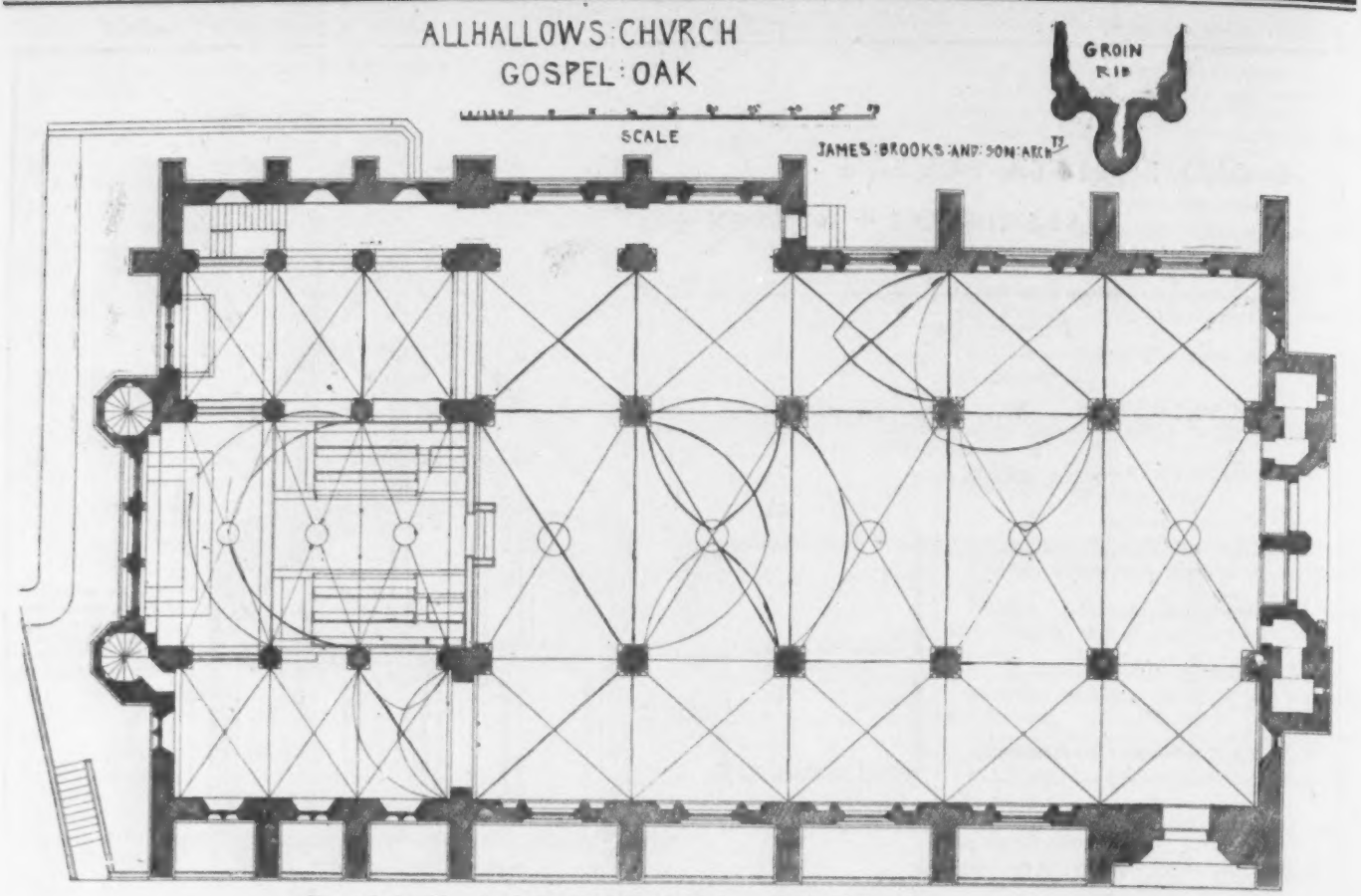



*Plan of the Church of the Good Shepherd (now "All Hallows"), Gospel Oak.*

WARWICK.

*Bilton* :—Rood-loft, piscina.
*Lapworth* :—Relic-chamber.
*Polesworth* :—Effigy of an abbess.
*Shotteswell* :—The cill of a window forms a chantry altar.
*Sutton Coldfield* :—Effigy of a bishop with staff on *right* side.
*Warmington* :—The cill of a window forms a chantry altar.
*Warwick* :—Herse ; confessional (?)
*Wooten Wawen* :—Chancel-arch, less than 5 ft. in width.

WESTMORELAND.

*Kirkby Lonsdale* :—Variety of styles.
*Lowther* :—A horse-shose nimbus on a stone in the churchyard.

WILTSHIRE.

*Allington* :—Low side window, with seat and desk.
*Bishops Cannings* :—Confessional.
*Britford* :—Three small Roman arches.
*Castle Combe* :—Chancel arch has niches, figures, and canopies.
*Charlton* :—Squint through two walls.
*Chisleden* :—A fine consecration cross, representing the Crucifixion.
*Compton Bassett* :—Stone rood-screen.
*Combe Bissett* :—The plinth of a column is extended to receive the font.
*Creedwell* :—Five of the Sacraments in glass.
*Enford* :—Octagonal vestry, with passage leading to it.
*Malmsbury* :—Window projects from triforium arcade.
*Purton* :—Two spires.
*Salisbury (St. Thomas)*.—Inscribed capitals.
*Stockton* :—Chancel arch, having on each side a small opening. Effigy of a female (of the fourteenth century) reclining on one side, clearly its original posture.
*Wanborough* :—Two spires.
*Yatton Keynell* : Stone rood-screen.

WORCESTERSHIRE.

*Crowle* :—Marble lectern, *c.* 1218, dug up near the ruins of Evesham Abbey.
*Huddington* :—Confessional (?).
*Kempsey* :—Piscina with three brackets, and traces of a shelf also.
*Malvern* :—Tiles, one bearing a remarkable inscription.
*Martley* :—Incense ship and sacring bell, both found beneath the pulpit.
*Oddingly* :—Glass.
*Stoulton* :—Vestment.

YORKSHIRE.

*Bedale* :—Herse.
*Beverley (St. Mary's)* :—Minstrels' pillar. Inscriptions on pillars.
*Brandesburton* :—Niche having one side splayed right away.
*Bridlington* :—Stone offertory box.

H. L.

## AN ANCIENT PRIESTS' HOUSE.

THIS is a measured drawing showing the present condition of the ancient timber-built priests' house, at Alfriston, Sussex. The drawing was made by Mr. Henry W. Stock, from measurements at the building. He observes that the interior of the house is so gutted that he has been able to show very little of the interior arrangements.

Both the end rooms have the remains of large open fireplaces of stone, with moulded edges, the exterior portion of brick, and probably contemporary with the house. The church adjoining is of Perpendicular date, the house having been probably built at the same time.

The rector is interested in the preservation of the house, and has made a start in restoring it, intending to use it as a parish room, but funds are much wanted for proceeding with the work (see page 473).

## TRADE CIRCULARS.

MESSRS. H. F. JOEL & CO. send us the new and revised edition of their illustrated catalogue of plant and materials for electric lighting, which also contains a good deal of information as to the fixing and moving of dynamos, motors, arc lamps, &c., which may prove useful to those who, in the colonies or in the provinces, are out of the way of assistance in such works. —— Messrs. James Guthrie & Co. send an illustrated catalogue of their "Hygienic Oil Heating Stoves," which as portable heating stoves independent of flues should be very convenient and useful in many situations ; but why are they "hygienic"?

WINDOW, ST. CUTHBERT'S, BLYTH.—Stained glass has just been inserted in the four-light west window of this church. The subjects chosen were four of the corporal acts of mercy, thus being suggestive of the person memorialised, the late Dr. Ward. Each subject is complete in itself, with fifteenth-century canopy-work at the top and bottom. The work was carried out from the directions of Messrs. Hicks & Charlewood, architects, Newcastle, by Messrs. Percy Bacon & Brothers, of London.

# Illustrations.

## DESIGN FOR COMPLETION OF THE SOUTH KENSINGTON MUSEUM.

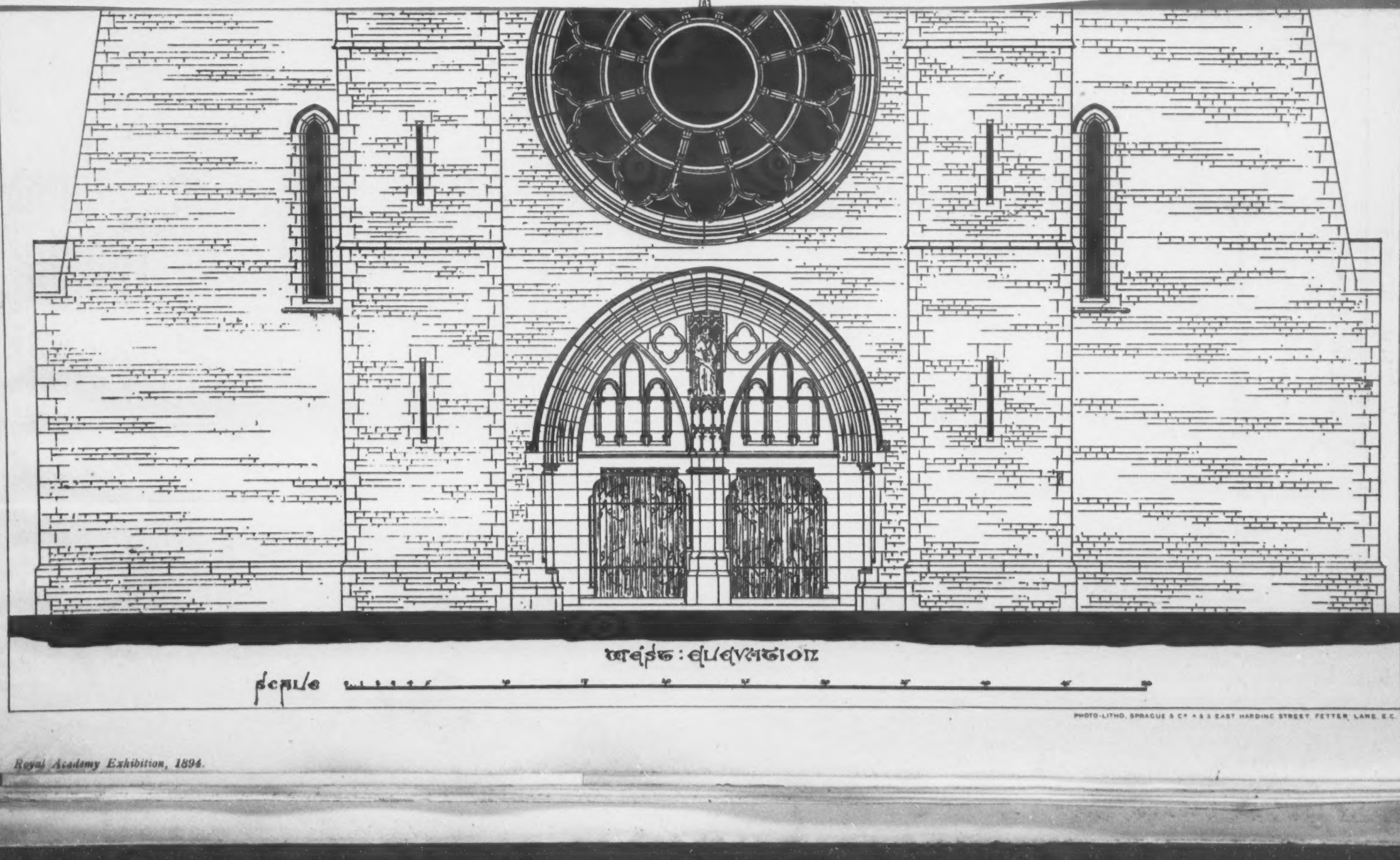
THIS illustration is from an admirable and broadly-treated drawing, in Indian ink, by Mr. McGuinness, R.H.A., and is a perspective view of the design for the completion of South Kensington Museum by Mr. John Belcher.

## CHURCH OF THE GOOD SHEPHERD.

SINCE making the plans for this church, owing to a grant made by the Ecclesiastical Commissioners from the sale of the site of All Hallows Church, Upper Thames-street, a new ecclesiastical parish has been formed, and called All Hallows, North St. Pancras, the endowment from the ancient church being assigned to the recently-formed parish, once known as the Good Shepherd, but for the future to be called All Hallows. The site of the church is bounded on the east by Courthope-road, on the west by Shirlock-road, on the north by Savernake-road, on the south by a small portion of vacant land, on which at some future time it is intended to erect a parish hall.

The church is being erected in Ancaster stone, with a core of Portland stone cement concrete. The width of the church within the walls is 64 ft., the length of nave and north and south aisles is 96 ft., chancel 42 ft. 6 in. long, the north and south aisles 37 ft. The south aisle is fitted up to be used as a chapel, having a separate entrance out of a small aisle or passage. Owing to the great fall of the ground from west to east a crypt has been formed under the north and south chancel aisles and under the chancel, giving a parish-room under the north chancel aisle, a choir vestry under the south chapel, and a large vaulted clergy-vestry under the chancel. At the east end of the chancel are two octagonal turrets having staircases leading up to the gutters and for repairs of roofs. At the west end are two square turrets. The nave has five bays, the chancel three. All parts of the church, chancel and aisles, are groined in stone springing from and growing out of cylindrical shafts 2 ft. 8 in. diameter, the springing being 28 ft. from the level of nave floor. Owing to the great thrust of the groining the buttresses project 7 ft. from the external face of the wall, and are carried up without any weathering for about 20 ft., and then have a gentle slope to about 3 ft. of the wall. The accommodation is for nearly 1,400, and the approximate

# Church of the Good Shepherd, Gospel Oak.



Royal Academy Exhibition, 1894.

PHOTO-LITHO. SPRAGUE & Co. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

# Church of the Good Shepherd: Gospel Oak:

James Brooks and Son Archts.

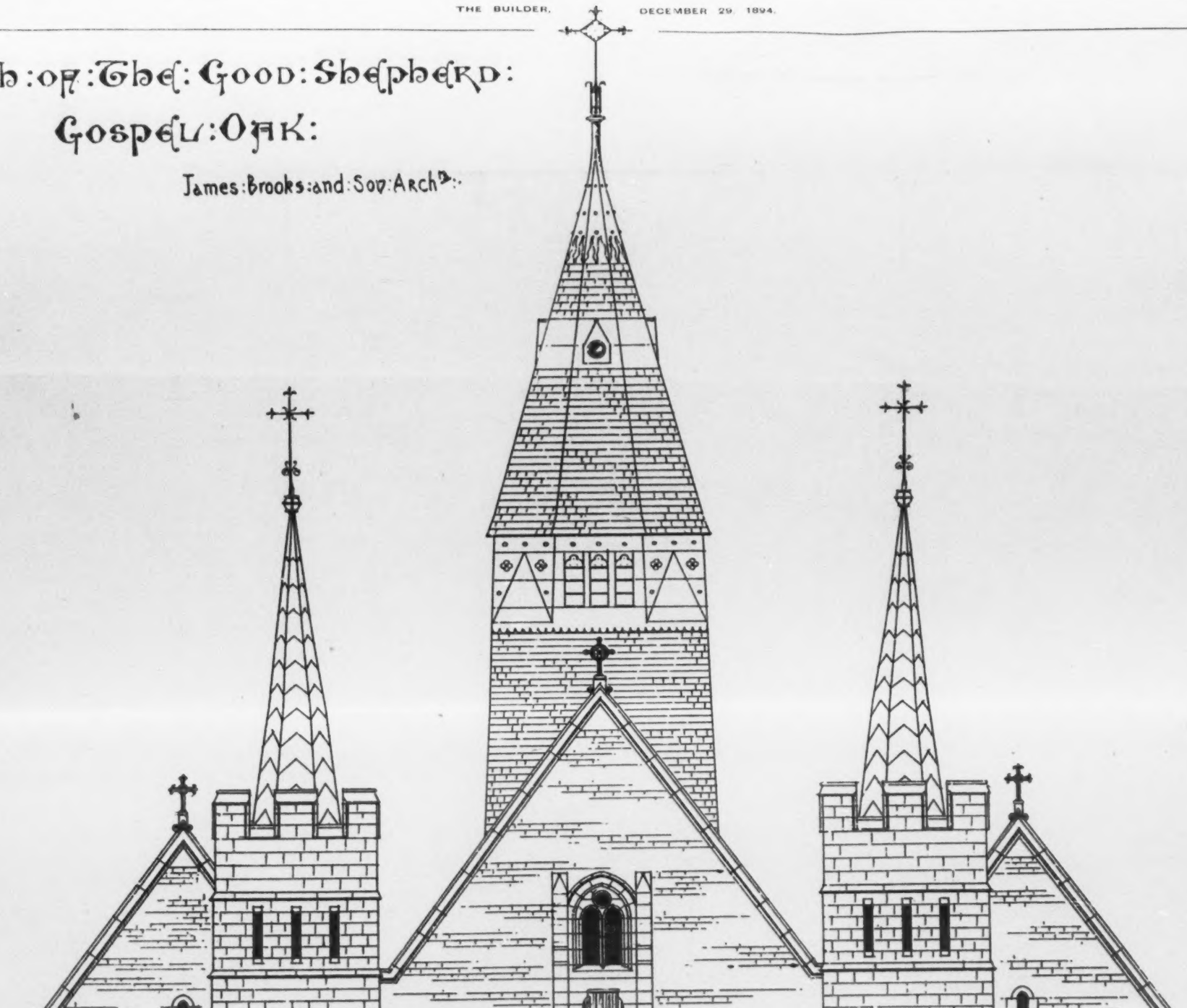


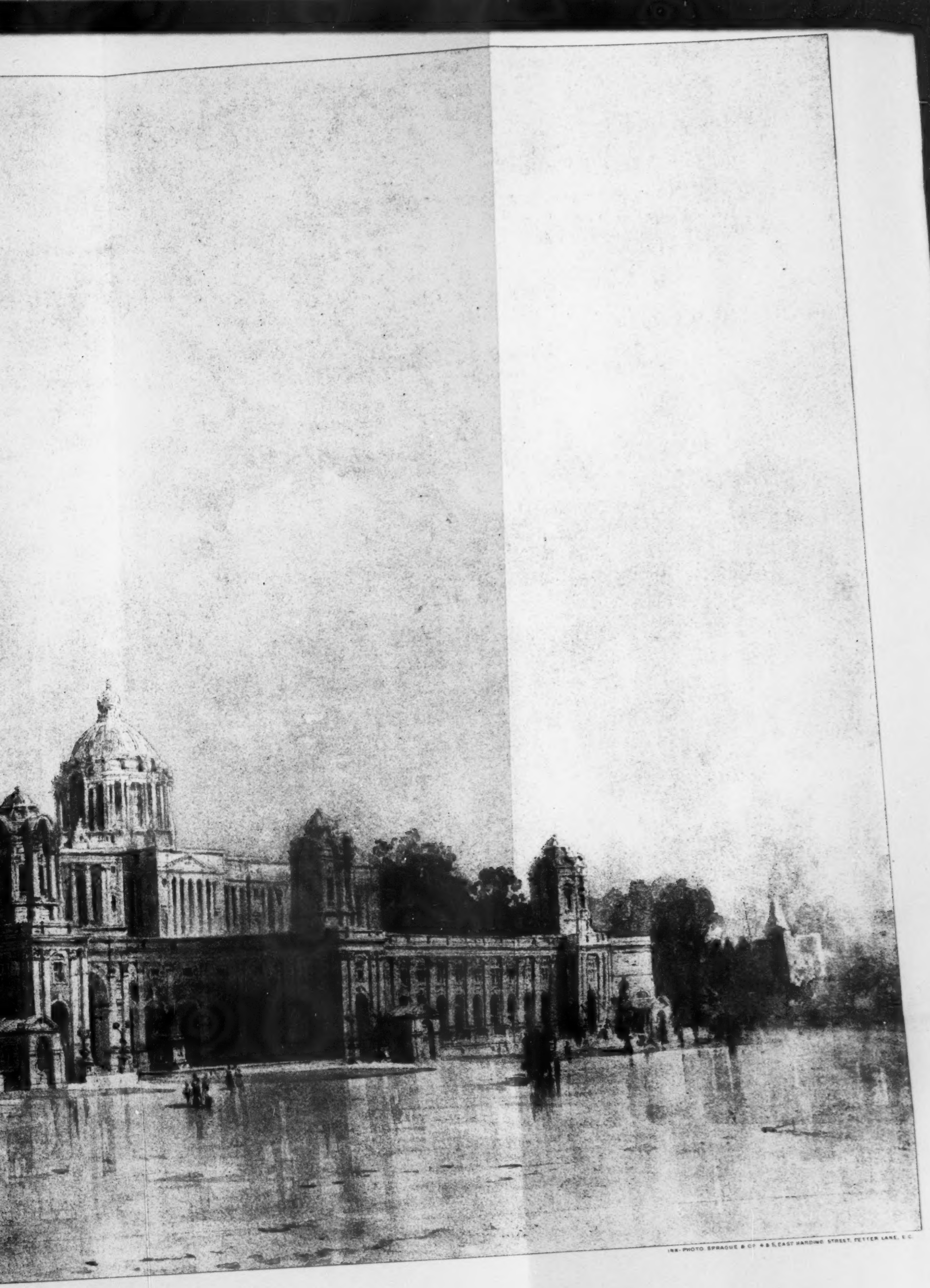
PHOTO-LITHO. SPRAGUE & Co. 4 & 5 EAST HARDING STREET FETTER LANE E.C.

*Royal Academy Exhibition, 1894.*

DESIGN FOR

DESIGN FOR THE COMPLETION OF SOUTH KENSINGTON MUSEUM.—By Mr. John Belcher, F.R.I.B.A

DESIGN FOR THE COMPLETION OF SOUTH KENSINGTON MUSEUM.—By Mr. John Belcher, F.R.I.B



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CHER, F.R.I.B.A

# Church of the Good Shepherd Gospel Oak

James Brooks and Son Archts.

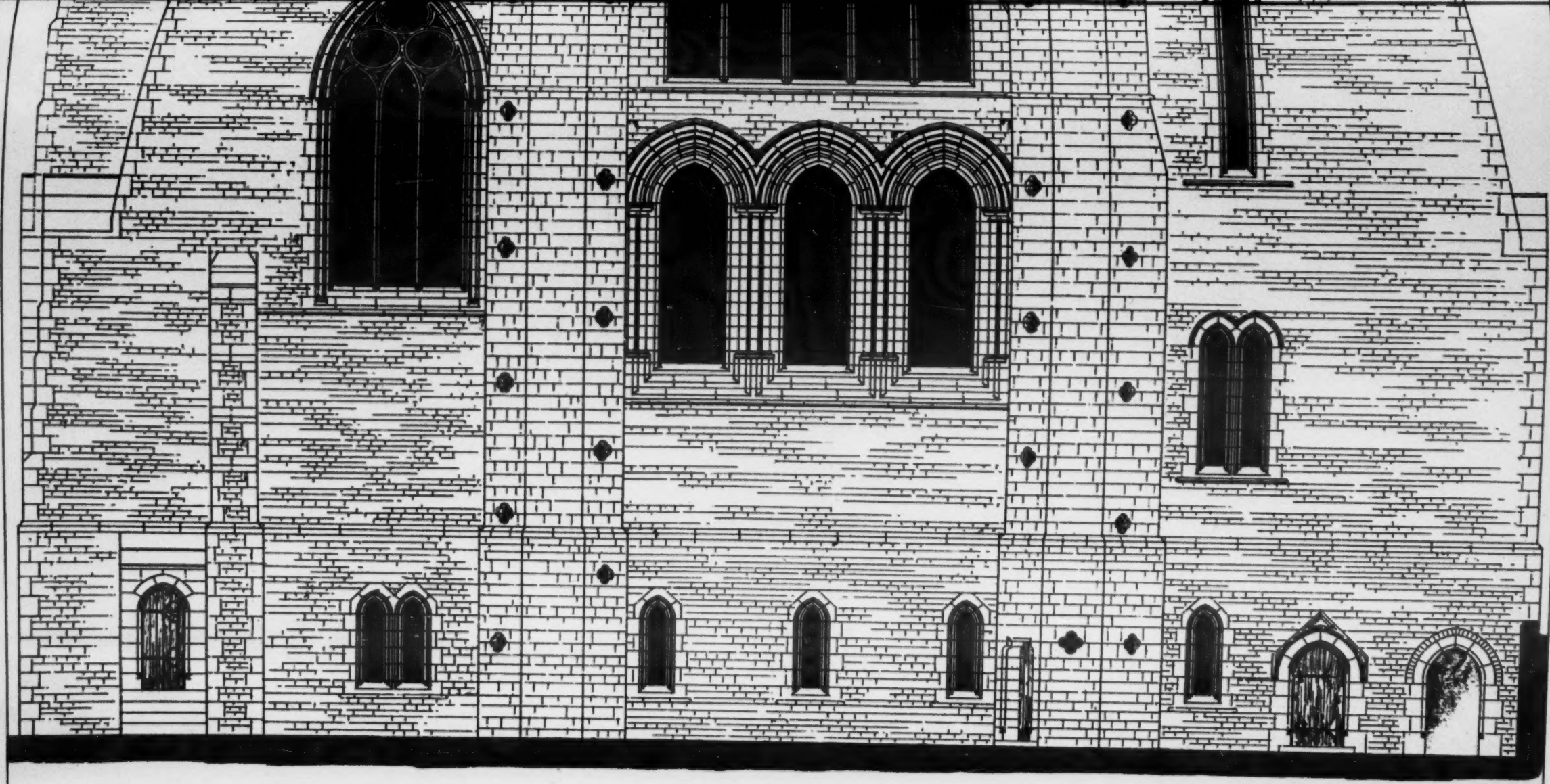


PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET FETTER LANE E.C.

*Royal Academy Exhibition, 1894.*

# Wayside Notes in East Anglia

by

John Shewell Corder. Arch^t.

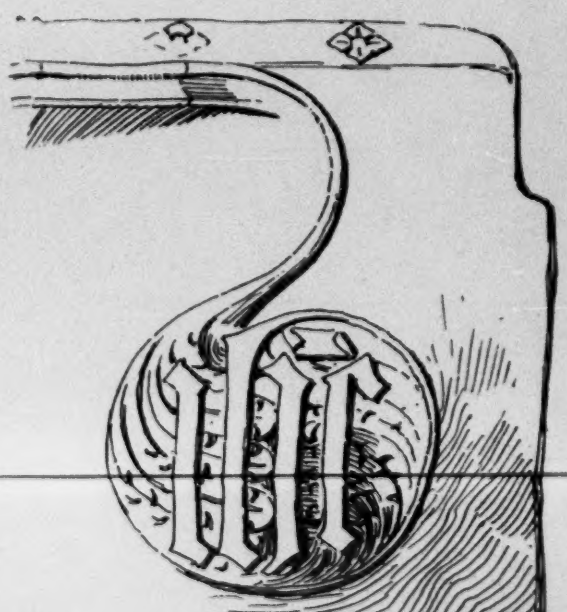
## BENCH ENDS

Bench End.
The Guildhall.
Norwich.
1. 5½"

Lakenheath
Church
Suffolk

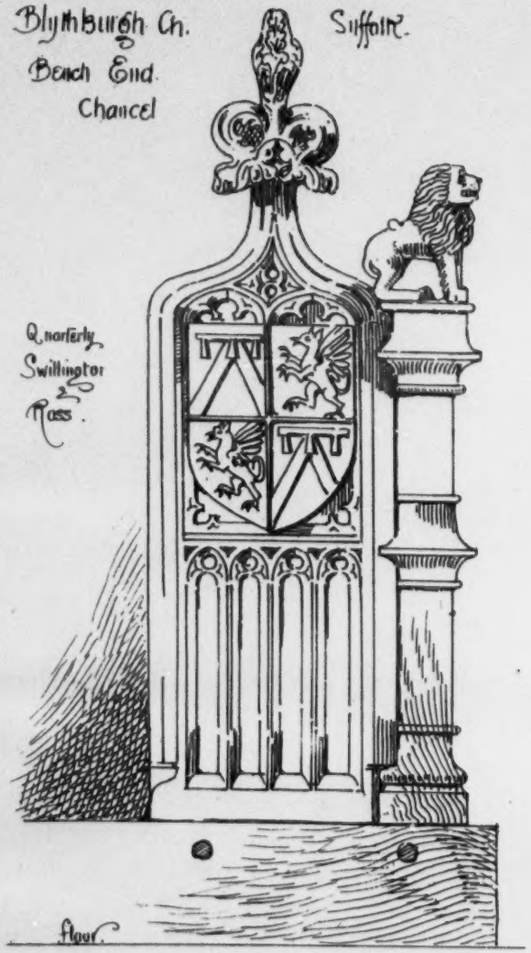
Bench End
St Mary's
Bury S. Edmunds

Bench End.



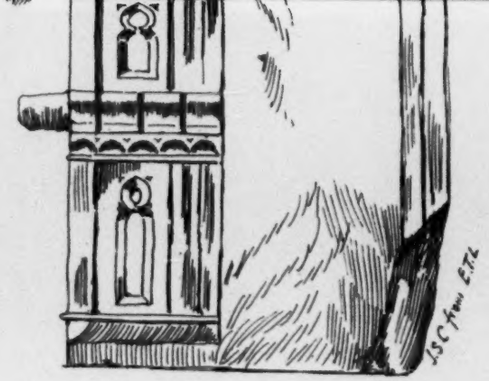
Bench End.
Cawston Church.

Blythburgh Ch. Suffolk.
Bench End.
Chancel



Quarterly
Swillington
Ross.

Floor.



J.S.C. from E.T.L.

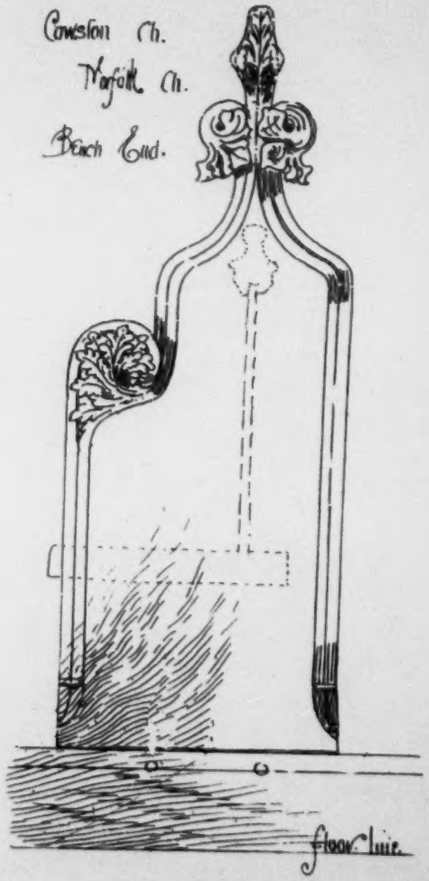
Carving under Miserere
Cley. Ch. Norfolk.

.16.

Norwich
Cathedral.

Martham Ch. Norfolk.
Poppy head. 11½ × 7.
S. Aisle.

Cawston Ch.
Norfolk Ch.
Bench End.



floor line.

PHOTO LITHO SPRAGUE & Co 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

cost is about 18,000*l.* Messrs. James Brooks & Son are the architects.

## WAYSIDE NOTES IN EAST ANGLIA.

IT would be difficult to find a part of England so rich in old oak carving as East Anglia. Nearly every village church has some, and several have many specimens. Of screens there is an abundance; the many carved roofs are amply exemplified in Brandon's Book—and all architectural students find there a happy hunting-ground for ornamental detail of all descriptions.

The technical detail of Gothic Architecture has, in nearly every county, great similarity during the various epochs or stages of its development. But the same cannot be said of the carvings, and this is of necessity the case, because much depends on the individual carver, and so many influences affect him apart from the canons of his art. Thus in towns where large industries have been formerly carried out, which industries owed their rise to foreign refugees, we find this influence affecting the carving to a large extent, and traits are clearly discernible which are quite distinct from those of other localities, even in the close proximity.

These Gothic carvings are very unequal in merit, and we often find a specimen of great beauty, embodying emblems of Purity and Religion, side by side with some hideous grotesque, the hidden significance of which is hard to discover.

As Gothic architecture approached the wane these fabulous creatures became more and more prevalent, indicating the spirit of the times, until at length a most unhealthy tone prevailed which continued till the close of the style.

These carvings are intensely interesting, even in their bad period, and are worthy of more than a passing study.

They had a distinct value at the time of their execution, and many an object lesson was inculcated by their means. Take for instance the bench-end at Cawston, where the devil is seen devouring a man; or at Norwich Cathedral, with the pelican in its piety picking its breast till the drops of blood stream down into the open mouths of the expectant offspring.

Then who, again, can gaze at the bench-end from Lakenheath and not feel impressed by the devout appearance of the two angels praying, with their small open books resting on the poppy-head. Even in their mutilated condition they preserve a sanctity which the hatchets of Dowsing, the Parliamentary destroyer, could not efface.

The example from Blythburgh bears the armorial bearings of the lord of the manor and benefactor of the church, and the same heraldic idea is conveyed by the greyhound, ducally gorged, in Norwich Guildhall.

At Martham and Cawston we see the ordinary treatment of the poppy-head, with a conventionalised foliage device, of which hundreds of examples are to be found throughout the country.

Anyone willing to brave the fatigues of a somewhat tedious route will be well repaid by a visit to Lakenheath. It is situated on a cross line from Thetford to Ely on the eastern margin of the fens, in a very isolated position.

All round the town, which, by-the-way, is two miles from the station, stretches a sandy waste inhabited by countless numbers of rabbits.

The town is a very old one, and even before 1200 A.D. had a market which was abolished by the Abbot of Bury, and again revived in 1309 by a grant from the Prior and Convent of Ely. The Dean and Chapter of Ely are patrons of the vicarage, and were appropriators of the Rectory and Lords of the Manor from the Dissolution of the Monasteries until, a few years ago, when the Rectory and Manor were transferred to the Ecclesiastical Commissioners. The town was formerly celebrated for the manufacture of cloth, and some of the brasses in the church are to the memory of wealthy clothiers.

The church, St. Mary, is a most interesting building, containing chancel, nave, aisles, north and south porches, and a fine tower, in which hang two Mediæval and three later bells. It chiefly belongs to the Early English period, and there is a beautiful Early English font, and a Norman chancel arch with remains of frescoes. In the church are many fine examples of carved oak, of which one example is given.

The early registers were destroyed by fire, but amongst the charities, of which there are several, is a bequest of 154 acres of fenland for the use of the poor, to dig turf for fuel.

A sketch of the font is enclosed, and it will be seen to be of a very interesting character.

JOHN S. CORDER.

## Books.

*Archæological Survey of Egypt: El Bersheh.* Part I. By PERCY E. NEWBERY. Egypt Exploration Fund Offices, London; also Kegan Paul, Trench, Trübner & Co.; B. Quaritch; and A. Asher & Co.: London.

THIS volume of the valuable publications of the Egypt Exploration Fund is occupied with the Tomb of Tehuti-hetep at El Bersheh, and includes also plan and measurements of the tomb by Mr. G. Willoughby Fraser, F.S.A. The tomb itself, architecturally speaking, is of the same type with a good many others in Egypt. It is described in the book as being the finest and most interesting of the ten inscribed tombs of the Middle Kingdom at El Bersheh. Like a great many others, it consists of a façade with two columns supporting an imitation beam or lintel cut out of the rock, with a large chamber in the rear entered by a door facing the centre intercolumniation of the façade. There are no columns in the interior chamber, the roof of which is flat, and not curved as found in many other examples that have been previously illustrated in this series of publications and elsewhere. The two columns of the façade, of one of which a large scale drawing is given on a separate plate, have the leaf capital of the well-known Egyptian type, but in a somewhat elongated form, both in regard to its own proportions and its proportionate relation to the length of the column, the whole shaft (below the amulets) being only two and a half times the length of the capital. The shaft is circular, but the capital octagonal on plan, springing awkwardly enough from the circular amulets. Altogether the architectural interest of this tomb is very slight, and we cannot at all concur in Mr. Newbery's suggestion that "the façade before its collapse" (it was damaged by an earthquake) "must have presented an imposing architectural front"; especially considering that the columns and architrave, according to his account, "were coloured pink and marbled with pale green to represent rose-granite." Why this kind of sham, which is denounced as vulgar in the present day, should be condoned when the Egyptians did it, we cannot understand; it was, to our mind, as bad then as it is now. The inscriptions and paintings are of considerable archæological interest. The inscriptions were made also to contribute to the decoration of the interior, being incised and painted green. The ceiling of the portico was painted up to the edges "with yellow quatrefoils on a blue ground"; according to the sketch given, "quatrefoils" is hardly the right word, they are four-petaled flowers in a cross form. A great many of the paintings represent hunting and fishing, &c., indicating that Tehuti-hetep was a monarch of sporting tastes.

We do not understand the observation that "the shrine is practically uninjured as far as architectural features are concerned," because there are absolutely no architectural features; it is an oblong room with plain walls and a flat ceiling. There seems rather a tendency to exaggerate in describing remains of this kind.

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*La Machinerie Théâtrale: Trucs et Décors.* Par GEORGES MOYNET, architecte. Paris: La Libraire Illustrée.

THIS is an extremely amusing book; and that, we fancy, is the light in which the author himself regards it. He undertakes to give an explanation, at great length and with many illustrations and diagrams, of the means whereby stage effects are produced, especially those which are required in that class of drama in which spectacular effect and the production of surprising and unexpected appearances and disappearances of the stage personages are the main objects. The author's tone is, in general, too jocular to allow us to believe that he is very much in earnest about stage-craft. Thus we have a chapter on "Gloires, Vols, et Apothéoses," commencing with the statement that "Une piéce féerique qui se respecte ne va pas sans deux ou trois apothéoses, et souvent plus:" and he proceeds to show the reader "how it is done;" and so on in regard to other branches of the subject. The general impression left on the reader is that the most literal translations of "Trucs" is, or ought to be, "Tricks." We do not think any theatre architect would find the book of much value as a guide to stage construction. But it is full of entertainment, and will be of great interest to that large portion of the public to whom scenic effect is the chief attraction at a theatre.

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*An Old Kirk Chronicle: Being a History of Auldhame, Tyninghame, and Whitekirk, in East Lothian.* From Session Records. By the Rev. P. H. WADDELL, B.D. Edinburgh: W. Blackwood & Sons.

THE author states that this book has been written for the sake of the past and from a sense of duty; so much in the history of parish churches in Scotland having been lost, he thinks it a duty of every parish minister to put on record all the information he can collect as to the history of his parish and its church. We are entirely in agreement with him, and only wish that more parish ministers would endeavour to emulate the author in thus contributing to history. At the same time we must observe that the history here recorded is more general history than what is more specifically called archæological; still less is it architectural. There are however photographs of the churches, both interior and exterior, and of some simple but interesting specimens of old church-plate. There are no plans, which from the archæological and architectural point of view is a fatal error. The book contains much interesting and characteristic parish history, but not of a kind into which we can enter here.

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*Sussex Archæological Collections:* Vol. XXXIX. Lewes: Farncombe & Co. 1894.

THE most interesting item to us in the thirty-ninth volume issued by the Sussex Archæological Society, is the paper by Mr. André on "The Chancel Screens of Parish Churches," illustrated chiefly by Sussex examples. The paper gives a brief sketch of the origin and history of chancel screens generally, with a good many particulars about special examples, and a list, not professing to be quite complete, of chancel or rood screens in Sussex churches. Mr. Michell-Whitley contributes a short note on "Recent Finds of Pottery at Eastbourne," and Mr. Inderwick, Q.C., a longer one on Rye under the Commonwealth; and Mr. W. F. Martin a communication on the rebuilding of Ringmer Church Tower, accompanied by a plan. The volume contains a great deal of subsidiary information in regard to local and family history, &c.

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*A Text-book of Mechanics and Hydrostatics.* By HERBERT HANCOCK, M.A. London: Samson, Low, Marston, & Co. 1894.

THIS book is the embodiment of a series of notes which the author had written for his own use when lecturing on this subject. He has now so arranged them that by the help of copious illustrative examples and diagrams taken from common objects, the student may be able to master the fundamental principles upon which a knowledge of mechanics and hydrostatics is based.

In order that those who have not hitherto acquired much knowledge of mathematics may have some tools to work with, Mr. Hancock has explained the method of measuring angles, and the geometrical meanings of the terms used in plane trigonometry; and throughout the book he has described each portion of this subject in so simple a manner that there should be no difficulty in obtaining a very useful knowledge of these sciences.

The author has attached to each chapter a large number of questions, the answers to which are given at the end of the book. Many of these questions are taken from the matriculation examinations of the University of London, and those of the Royal Military Academy, Woolwich, and exemplify the kind of problems generally set by the examiners.

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*The Slide Rule.* By C. N. PICKWORTH, Wh. Sc. London: Emmott & Co., Ltd., 56 and 57, Fleet-street. 1894.

THE reason why the Gravêt slide rule is not used as much as it deserves to be is probably owing to the want of a small practical manual of instruction exemplifying the utility of the instrument.

Such a work, however, has now been supplied by Mr. Pickworth, who explains very clearly the principle of slide-rule computations, and shows how it can be employed by those wishing to take the fullest advantage of its numerous applications in technical calculations of all kinds. The author deals with his subject in a very simple manner, and even those accustomed to use the instrument will be surprised to find the large number of calculations it can be made to perform.

# Correspondence.

*To the Editor of* THE BUILDER.

## SOUTH SHOEBURY CHURCH.

SIR,—May I suggest that the two recesses at the sides of the chancel arch of this church were not originally intended to accommodate altars, but were survivals of a very early ritualistic arrangement, exemplified by the plan of the principal basilica in the Cœmeterium Ostriani, described by De Rossi in "Roma Sotteranea," as of the earliest years of the fourth century? In this basilica in positions corresponding to the two recesses at South Shoebury, are two niches, in one of which the sacred books were kept, and in the other the sacred vessels, and all things necessary for the offering of the holy sacrifice; they were, in fact, credence tables, or aumbries.

There are two similar recesses in the church at Castle-Rising, Norfolk; that on the north side retains its semicircular arch, whilst that on the south has in the thirteenth been enriched by a well-moulded pointed arch, and furnished with a piscina, when it was converted into an altar recess.

S. J. NICHOLL.

*** There is a semi-circular addition, like a small apse (showing externally), in the north nave-wall of Gumfreston, two or three miles from Tenby. This may possibly come under the same explanation.—ED.

## HEIGHTS OF FUTURE BUILDINGS IN LONDON NEXT THE STREETS.

SIR,—I should be glad if you would state whether I am correct in my reading of Sections 47 and 49 of the new London Building Act, 1894; and I have no doubt that many others would also like to have your opinion, as this is a matter affecting so many people who contemplate pulling down old buildings and erecting new ones. This, of course, did not come into the plan of your very able analysis of the Act, which was read with so much interest.

1. In a street over 50 ft. wide the new building may be 80 ft. high, and two stories may also be put in the roof.

2. In a street less than 50 ft. wide, formed or laid out after August 7, 1862, the new building may be as high as the width of the street, and may have two stories also in the roof.

3. In a street less than 50 ft. wide, formed *before* August 7, 1862, the new building may be as high as the width of the street, and may have also two stories in the roof; but if the old building on the site is higher than the width of the street, the new building may be carried to the same height as the old building. "AN ARCHITECT."

*** Our correspondent is right in paragraphs 1 and 2 of his letter, but not in No. 3, as the whole paragraph is correct for a street formed or laid out *since* August 7, 1862 (*i.e.*, for the present moment), and the words "before August 7, 1862" should be struck out of his paragraph. It will then be correct for the new Act, though it would be more accurate to say, "if the old building on the site *was* higher," &c., instead of "is." The case may be put more plainly as follows:—

1. In a street less than 50 ft. wide formed *since* August 7, 1862, the measure of height of a new building is limited to the measure of width of the street, and an existing building cannot be added to so as to exceed that limit. But if an existing building, which was higher than that limit before the "commencement" of the new Act (*i.e.*, before January 1, 1895) is pulled down, the new building on the same site may be erected to the same height as the old one which it replaces.

2. In the case of a street less than 50 ft. wide formed *before* August 7, 1862, the consideration of the width of the street *does not operate at all*, and the height of a new building is only limited by the general limit of height fixed by the new Act (*i.e.*, 80 ft.); with the exception that if the new building replaces an old one of greater height than 80 ft., it may be carried to the same height as the old one. This is a very undesirable state of things; but that is unquestionably the interpretation of the wording of the new Act.—ED.

## A MACHINE FOR CRUSHING SHINGLE.

SIR,—Could any of your readers inform me if there is a machine in existence for crushing shingle into sand for stone-sawing purposes? If so, I should like to know where it could be obtained.

F. E. STEPHENS.

## *COMPETITIONS.*

MUNICIPAL BUILDINGS, KING'S LYNN.—The result of the competition for municipal buildings at King's Lynn has just been made known. The first premiated design is by Messrs. Tree & Price, 70, Warwick-road, Earl's Court, London; the second being by Mr. G. Sedger, 26, Great James-street, Bedford-row.

## PRIVATE BILLS—SESSION 1895; AND BOARD OF TRADE PROVISIONAL ORDERS.

IT is stated that the plans and books of reference deposited last month in the Private Bill Office relate to 189 undertakings, of which about 50 are for railways, 65 for gas and water (principally), and 30 for electric lighting. We give an abstract of the more important projects.

*Railways.*—Metropolitan District—Revival of powers and extension of time to complete the Acton Junction line, under their Act of 1878. South-Eastern—Further lands at London Bridge Station for their suburban traffic. City and South London—Extension of time under the Acts of 1890-3, and an additional approach beneath Arthur-street east to King William-street Station. London, Walthamstow, and Epping Forest—To alter and deviate from authorised lines in Hackney, Newington, Clapton, Walthamstow, Leyton, and Tottenham. Metropolitan and Outer Circle—To abandon and annul their Act of 1888. Extension of time for completing the electric railway-line from the City to Finsbury Park. Latimer-road and Acton; extension of time. Manchester, Sheffield, & Lincolnshire—very numerous powers, comprising new lines in the counties of Nottingham, Lincoln, and Middlesex, and in London, deviations from their lines authorised by their "Extension to London" Act, 1893, and a line from the Metropolitan Railway at Preston-lane, near Harrow, through Kingsbury, to Willesden. The system of this railway forms a net-work of lines, reaching from Liverpool, Chester, and Wrexham, to Hull, Grimsby, and Lincoln, with branches, not yet completed, to Southport, Preston, and Blackpool, and to Leeds, Halifax, Bradford, Wakefield, Huddersfield, Mansfield, and Derby. To Sir E. Watkin is mainly due the extension to London. It begins nine miles north from Nottingham, at Annesley, sung by Byron, for it was Mary Chaworth's home. Thence by Hucknall Torkard, near Wollaton, through Nottingham, by Clifton, commemorated by Kirke White, where they point out the poet's favourite avenue, and so to Gotham, Loughborough, past Charnwood Forest, on to Leicester. It then goes on by Lutterworth, where Wycliffe was rector during the last nine years of his life, to Rugby, and then through Northamptonshire into Buckingham, to join the Metropolitan line at Quainton-road, six miles north from Aylesbury. From that town running-powers will be exercised to Wendover, Great Missenden, Amersham, Rickmansworth, and Harrow, to Willesden Green. Thence a new branch will be made to traverse West and South Hampstead and St. John's Wood, ending in a terminus at Marylebone-road, east of Lisson Grove. Large areas are taken for sidings, &c., at Neasden, and for goods and coal in Marylebone. Thus will be cleared away Harewood and Blandford-squares, and with them two homes of "George Eliot," also nearly all the houses and their gardens in the quarter lying south of the eastern portion of St. John's Wood-road. A line from Uxbridge terminus, Great Western Railway, by Denham, where Sir Humphrey Davey loved to fish, Moor Hall, and Harefield Mills (where, they say, was cast the copper ball of St. Paul's), to West Hyde and Springwell, whence two branches will extend to the Metropolitan and London and North-Western stations at Rickmansworth. The line passes for about nine miles through the Colne Valley and Harefield parish—familiar to Milton, who, when living in Horton, often visited at Harefield Place, and wrote his "Arcades" for performance there by the grandchildren of Alice, Countess Dowager of Derby, who bought Harefield in 1601, soon after her marriage to the Lord Keeper, Sir Thomas Egerton. He refers to these places in "Arcades" and "Epitaphium Damonis." London and South-Western—New line from Stratton, with a branch to Bude, through Marhamchurch, Poundstock, Bridgerule, and Pyworthy, to their branch at Holsworthy (fourteen miles distant); widening of main line at and between Worting and Basingstoke, and to take additional lands at various places in London, the suburbs, and provinces, including a small plot of the New Forest at Eling. Stroud and Painswick—A new company to make a light railway from the Great Western and Midland at Stroud to Painswick and Cranham, through South Rodborough and Whiteshill (six miles). Liskeard and Looe Union Canal—Lines from their railway to Liskeard Station (Great Western Railway). Hayes and Farnborough—For dissolution and re-incorporation, and a new line (about four miles) from Bromley Station, London, Chatham and Dover Railway, by Hayes, Barnet Wood, and Sevenoaks Road, to Locksbottom at Farnborough. Lynton and Barnstaple—A new line between those places, fifteen miles distant. Great Eastern—A line, in the Isle of Ely, from Whittlesey St. Mary to Benwick, six miles distant, and a quay on the Nene at Benwick. Great Western—New lines and widenings in Monmouth and Glamorgan, and similar minor works in the western portions of their system. A new company—For a line from West Buckland, Devon and Somerset Railway, to Lynton, thirteen miles distant. Isle of Wight Central—A line from Ashey, Ryde, to Horringford, near Arreton, joining their Ryde and Newport, and Newport and Sandown branches (six miles). Great Northern—New lines at Peterborough, Nottingham, Basford, and Manchester, with the widening of their Hitchin to Arlesey, Helpstone to Essendine, Little Bytham to Corby, and East Markham to Gamston lines. Yorkshire Dales—several lines in the West and North Ridings. East Denbighshire—Railways to connect Wrexham and Rhosllanerchrwgog, and with the Pontcysyllte line of the Shropshire Union Railways and Canal Company in Wrexham. Tenterden—Lines from Boxley through Maidstone, Loose, East Farleigh, Boughton Monchelsea, to Headcorn (about thirteen miles); from Headcorn through Frittenden, Biddenden, to Tenterden (seven miles distant); and from Tenterden through Woodchurch, and Kennardington, to Appledore, and Snargate on Ashford and Rye line (six miles distant). Torrington and Oakhampton—A line through Great and Little Torrington, Langtree, Petrockstow, Meeth, Exbourne, and Sampford Courtenay to Oakhampton (seventeen miles distant); which will appropriate an aggregate of twenty-five acres of common land mostly at Hatherleigh and Great Torrington. Caledonian—To take over the Solway Junction Railway undertaking. South-Eastern—To purchase the Lydd Railway.

*Municipal.*—Brighouse Corporation—Various powers; this bill will seek for powers "to require street musicians to depart when requested," and "to impose penalties on occupiers refusing to give names of owners." Croydon Corporation—For a Watch Committee, a separate police force and exclusion from the Metropolitan Police District. Bristol Corporation—extension of city boundaries, by including Shirehampton, Herfield, Stapleton, Kingswood, and Saint George parishes, with Dunball Island, and parts of Brislington, Bedminster, Ashton, Henbury, Westbury, and Mangotsfield. Folkestone Corporation—Boundaries to include Cheriton and Sandgate for all municipal and sanitary purposes. Blackpool Corporation—New roads and extension of limit to take in all Bispham with Norbrick and the adjacent sea-shore. Liverpool—A company to take over the New Cattle Market Company's undertaking and new works for the same, including railway lines, subways, &c., in Bootle township. Kingston-on-Hull Corporation—For a variety of powers, comprising an extension of limits; a site in Sculcoates for new public municipal buildings, with central library and technical instruction schools; to prohibit the erection or continuance of sky-signs, and to regulate street advertising and the use of vehicles for displaying advertisements in the streets; a crematory in the Western Cemetery; and to "prohibit the constructing or fixing of any projection or advertisement hoarding or other hoarding over any street, or so as to allow any suspended load to hang over the surface of the street" without their consent. Local improvements at Wood Green, Tottenham—To include the erection of baths, washhouses, and artisans' dwellings, and widening of Station-road and the main road. To divide St. Paul's, Deptford, with Hatcham, from the Greenwich District, to set up a separate vestry therefor, and to provide that the said District shall consist of only the parishes of St. Nicholas, Deptford and Greenwich. To amend the Westminster (Parliament-street) Improvements Act, 1892, reviving certain powers under the original Act of 1887, for the compulsory purchase of the Great George-street site, and abandon the two new streets authorised by the latter Act.

*Tramways.*—Leeds Corporation—New lines. London Street Tramways—To abandon the Archway-road line, and for relief from obligation to contribute to the cost of reconstructing Highgate Archway; and lease tramways from the London County Council or the Local Authority of any district adjoining the County of London. London, Deptford, and Greenwich Co.—New tramways in Tooley-street and Parker's-row.

*Gas.*—British Gas Light Co. (Staffordshire Potteries)—Additional capital for their works at Etruria and Brownhills in Burslem. The Middlesex Gas Co.—For dissolution and re-incorporation, and new works for extended supply in Hendon and Finchley. A joint Board for Mytholmroyd and Hebden Bridge, Yorks. W.R., Local Boards, the latter to take over the Hebden Bridge Gas Co.'s works. Brighouse Corporation—To purchase the Rastrick Gas Co.'s undertaking. South Metropolitan—To convert their capital into stock bearing a uniform lower standard of dividend, and for representation in the management of stock-holders in their employ.

*Water.*—Barnsley Corporation—New works and reservoir in Ecclesfield, to be made by embanking the Haggbrook valley. Merthyr-Tydfil Local Board—A new reservoir in Llanfyrnach, by a dam across the upper portion of the Fây Fechan, the reservoir to extend up the river for about 33 chains. Rotherham Corporation—New works, and for further time to complete the Dalton reservoir. Lambeth—To raise not more than 500,000*l.* additional capital, for two additional reservoirs, and enlargement of those now at West Molesey. Croydon Corporation—To acquire plant, machinery, rights, &c., from the last-named company for supplying the South Norwood, Upper Norwood, and West Wards. Bridlington and Quay Water Co.—For dissolution, and re-incorporation as the Bridlington Water Co.

A company to supply Cranbrook, Goudhurst, and Hawkhurst, in Kent.

*Canals, Harbours, Docks, &c.*—Thames and Severn Canal Navigation Company—To sell their undertaking to a fresh corporate body, consisting of the "allied navigations," being representatives of various local enterprises, the County Councils of Gloucester, Wiltshire, and Berkshire, the Thames Conservancy Board, and others. Mersey Docks and Harbour Board—New pier from the Alfred Dock, with floating landing-stage and bridges to the river-wall. Swansea Harbour Trustees—A swing-bridge to replace the draw-bridge across New Cut, with a lock or half-tide basin by the existing north dock. Sutton Harbour Improvement Company—A quay, to be called the Coxside Quay, 700 ft. long, and to deepen Sutton Pool Harbour, Plymouth. Portishead—To widen and to lengthen, by about 560 yds., the present pier, in the Bristol Channel. A sea-wall at Dover, from the end of East Cliff-terrace, to Ness Point, St. Margaret-at-Cliffe. Brading Harbour and Railway—Several new works, to include a fresh channel from the "Ferry" Inn to the sea. To appoint Commissioners to construct drainage, outfall, and incidental works, in respect of the Fender Valley drainage.

*Provisional Orders.*—Notice is given of intention to apply to the Board of Trade for provisional orders as follows:—*Electric Light and Electricity*—Production, storage, and supply of light, or light and energy and power, by the Corporations of Winchester, New Windsor, Luton, Borth, and Carlisle; the Local Boards of Walthamstow, Alderley Edge, Cheshire, Swindon New Town, St. George, Gloucester, Radcliffe, Lancashire, and Leigh, Lancashire (Urban Sanitary Authority); by the following electric-light or power companies—County of London and Brush Provincial, to supply St. Olave's, St. Mary, Battersea, St. Mary, Newington, and Devonport; Windermere and District, in Grasmere, Ambleside, Bowness, Windermere, Kendal, Ulverston, and Grange; Pontypool, within the Local Government Board District; Liverpool; Bath City; Charing Cross and Strand, within the Strand District; Salisbury (extended area); Notting Hill (extended area); Holloway, in Great Crosby, Lancashire; Municipal, in Margate; and British Insulated Wire Company, Prescot, for Prescot, Whiston, Eccleston, Rainhill, and Hington, Lancashire. *Gas*—Enlarged works and areas by the following gas companies:—Barnstaple, Newark (Nottingham), and Felixstowe; and the taking over by the Corporation of St. Ives, Cornwall, the works near the Meadow. *Water*—Waterworks in Hayling Island; Holyhead Waterworks Company, enlarge their lower reservoir from 1¼ to 4¼ acres in area, and to make a new one, adjoining, of 2¼ acres. *Tramways*—West Hartlepool (new company); from Farnborough to Aldershot, through the North and South Camps, and the General Parade ground; in Great Yarmouth, with cars that can run on or off rails; Carlisle and district, new lines in Stanwix, St. Mary's, and St. Cuthbert's; Newcastle-on-Tyne Corporation, to extend to their system powers for moving the cars by wire or other ropes; City of Gloucester, new lines in the city, and in Hempstead, Tuffley, and Upton; London United—new lines in Hammersmith and Acton. *Harbours and Piers*—To appoint Commissioners for the improvement and maintenance of Cowes Harbour; to lengthen, by about 600 ft., the stone pier at Swanage, by the Swanage Pier Company; a new wharf and wall in the Camber, by the Portsmouth Corporation; a pier, about 150 yds., of piles, at Woody Bay, near Martinhoe, Devon, by Mr. B. G. Lake, or a company; and a pier, 230 yds., with new harbour-wall and landing-slip, at Minehead, Mr. G. F. Luttrell, of Dunster Castle, being "promoter" thereof.

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ARCHITECTS' ORDER FORMS.—This is a book of printed forms and counterfoils for giving orders for extras on a contract, and keeping a record of them. It is uniform with the book of "Certificate Forms" noticed in a previous number, and is issued by the same publisher (E. W. Savory, Cirencester).

A POCKET "READY-RECKONER."—The "Thumb Ready-Reckoner" (Oxford University Press) is a little volume 2 in. square giving the amount of every sum, from $\frac{1}{16}$ of a penny to 19s. 6d. when multiplied by numbers from 1 to 100. It contains also interest tables, and weights and measures and metric tables.

PULPIT, STARCROSS PARISH CHURCH, DEVONSHIRE.—The parish church at Starcross, dedicated to St. Paul, was recently re-opened, after restoration from the designs of Messrs. Rowell & Son, architects, of Newton Abbot. At that time a memorial pulpit from these gentlemen's plans was promised by a former resident of Starcross, and the work has now been carried out. It is octagonal in plan, the interior of the rostrum being gained by the preacher by a flight of six steps. It is made entirely of English oak. The base is moulded, and the upper portion has recessed panels on each of its seven sides. These are traceried and carved at top and bottom, and the whole structure is surmounted by a moulded and carved cornice. Messrs. Harry Hems & Sons, Exeter, have carried out the work.

# The Student's Column.

## DETAILS OF RURAL WATER SUPPLY.—XXVI.

PUBLIC INQUIRIES—(*conclusion*).

IN the preliminary chapter of this series it was stated that the money for carrying out waterworks by Local Authorities is usually obtained upon loan after a Local Government Board inquiry.

The Public Health Act, 1875, sec. 293, empowers the Local Government Board to cause to be made from time to time "such inquiries as are directed by this Act, and such inquiries as they see fit in relation to any matters concerning the public health in any place, or any matter with respect to which their sanction, approval, or consent is required by this Act."

The principal matters connected with the supply of water to rural districts upon which public inquiries are held, are:—

1. The borrowing of money beyond a certain amount.
2. The carrying of water-mains without the district.
3. The purchase of lands otherwise than by agreement.
4. The formation of a special drainage district for purposes of water supply.
5. The construction of large reservoirs.

The Public Health Act, 1875, sec. 295, states that "all orders made by the Local Government Board in pursuance of this Act shall be binding and conclusive in respect of the matters to which they refer, and shall be published in such manner as the Board may direct."

Sec. 296 empowers Inspectors of the Local Government Board "for the purposes of any inquiry directed by the Board (to) have in relation to witnesses and their examination, the production of papers and accounts, and the inspection of places and matters required to be inspected, similar powers to those which Poor Law Inspectors have under the Acts relating to the relief of the poor for the purposes of those Acts."

1.—*The Borrowing of Money.*

By Secs. 233, 234, Local Authorities are empowered, with the sanction of the Local Government Board, to borrow money for "permanent works" (*e.g.*, waterworks), and for such purpose they may "mortgage to the person by or on behalf of whom such sums are advanced any funds or rates out of which they are authorised to defray expenses incurred by them in the execution of this Act." In the case of a Rural Authority the cost of providing a supply of water to any contributory place within the district (*e.g.*, parish) is by Sec. 229, a special expense, and only the rate or rates out of which such expenses are payable may be mortgaged for that purpose.

The total amount of the loans outstanding is not at any time to exceed the "assessable" value for two years of the premises assessable within the district in respect of which such money may be borrowed. By "assessable" must be understood "rateable" in this connexion.

Where the sum proposed to be borrowed, together with the balances of outstanding loans (if any), would exceed the assessable value for one year of such premises, the Local Government Board shall not give their sanction to such loan until one of their inspectors has held a local inquiry and reported to the said Board.

The loan is usually obtained from the "Public Works Loan Commissioners," on the recommendation of the Local Government Board. It must be remembered that the Local Government Board can only recommend, and cannot compel.

2.—*The Carrying of Water-Mains Without the District.*

Sec. 32 requires a Local Authority before commencing the construction or extension (sec. 54) of any water-main without the district, to give three months' notice by advertisement in one or more of the local newspapers circulated within the district where the work is to be made. Such notice is to describe the nature of the intended work, and shall state the intended termini thereof, and the names of the parishes, and the turnpike roads and streets, and other lands (if any) through, across, under, or on which the work is to be made, and shall name a place where a plan of the intended work is open for inspection at all reasonable hours; and a copy of such notice shall be served on the owners or reputed owners, lessees or reputed lessees, and occupiers of the said lands, and on the overseers of such parishes, and on the trustees, surveyors of highways, or other persons having the care of such roads or streets.

Sec. 33 is to the effect that if any objection is raised against the intended works the said works must not be commenced without the sanction of the Local Government Board.

Sec. 34: "The Local Government Board may, on application of the Local Authority, appoint an inspector to make inquiry on the spot into the propriety of the intended work and into the objections thereto, and to report to the Local Government Board on the matters with respect to which such inquiry was directed, and on receiving the report of such inspector the Local Government Board may make an order disallowing or allowing, with such modifications (if any) as they may deem necessary, the intended work."

Sec. 285 provides that "any Local Authority may, with the consent of the Local Authority of any adjoining district, execute and do in such adjoining district all or any of such works and things as they may execute and do within their own district, and on such terms as to payment or otherwise as may be agreed on between them and the Local Authority of the adjoining district."

An important issue has arisen in connexion with the two last clauses, which is clearly set forth in the following extract from the *Justice of the Peace* for May 19, 1894, which applies equally to water-mains (Sec. 54):—

"Query:—(2). If one Authority desires to carry a sewer through land of an adjoining Authority, will it be sufficient to comply with Sec. 32, or will it be necessary to obtain the consent mentioned in Sec. 285?

(3). If such consent is necessary, can it be arbitrarily withheld by the adjoining Authority?

Answer:—(2). We think the consent of the adjoining Authority must be obtained. Such consent is a condition precedent to the works being undertaken.

(3). If the consent is withheld there is no power of compelling the consent to be given. It is, therefore, immaterial whether or not the consent is arbitrarily withheld, as such consent is necessary before undertaking the works."

3.—*The Purchase of Land otherwise than by Agreement.*

A Local Authority after having complied with the requirements of sect. 176 (sub-sec. 2), with regard to publication and the service of notices, may petition the Local Government Board to permit them to put into force the Lands Clauses Consolidation Acts. After receiving such petition, and being satisfied that the necessary formalities as to publication and service of notices have been complied with, the Local Government Board may either dismiss the petition or institute an inquiry. After such inquiry the Local Government Board may grant the petition, with such modifications or conditions that the Board may think fit.

4.—*The Formation of Special Drainage Districts.*

As stated in chap. i., the Local Government Board are rarely in favour of this step for purposes of water supply alone.

5.—*The Construction of Large Reservoirs.*

This refers only to reservoirs other than service reservoirs or tanks which will hold not more than 100,000 gallons, and therefore rarely applies to questions of rural water-supply. The Local Authority is required to properly advertise the proposed work in the local newspapers, and if any person who would be affected by the intended work lodges an objection, the Local Authority may appeal to the Local Government Board. After receiving such appeal the Local Government Board may institute an inquiry, after which they may make an order disallowing or allowing, with such modifications (if any) as they may deem necessary, the intended work.

Where a Local Authority make default (*inter alia*) in providing their district with a supply of water (sec. 299), and complaint is made to the Local Government Board, the Local Government Board, "if satisfied, after due inquiry, that the authority has been guilty of the alleged default, shall make an order limiting a time for the performance of their duty in the matter of such complaint. If such duty is not performed by the time limited in the order, such order may be enforced by writ of mandamus, or the Local Government Board may appoint some person to perform such duty." Similar powers are now given by the Local Government Act, 1894, sec. 16, to County Councils upon the complaint of Parish Councils.

Before holding an inquiry the Local Government Board require to be supplied with certain information in the form of statistics, plans, estimates, and details. The requirements of the Local Government Board as to plans have already been dealt with in chap. xi. The remaining information has to be supplied upon forms issued

for the purpose by the Local Government Board, which are filled up by the clerk or engineer, according to the nature of the queries.

The appended form has to be filled up by the engineer of the proposed works :—

WORKS OF WATER SUPPLY.—ESTIMATES AND DETAILS.

Name of Sanitary Authority .....

In the case of a Rural Sanitary Authority, name of contributory place for which the works are required.....

*Estimate for Cast-iron Mains.*

| Name of street or road. | Internal diameter of pipes in inches. | Weight per yard in cwt. lbs. | Total length in yards. | Total weight in cwt. lbs. | To carry head in feet vertical. | To carry lbs. pres. on the inch. | Price per cwt. | Total. £ s. d. |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

*Estimate for Fittings.*

| Description of work. | Nos. | Internal diameter in inches of valves, &c. | Weight of each in cwts. and lbs. | Price for cash complete. | Total. £ s. d. | Remarks. |
|---|---|---|---|---|---|---|
| Fire-cocks and hydrants.... | | | | | | |
| Casings to fire-cocks and hydrants, complete ... | | | | | | |
| Sluice-valves.. | | | | | | |
| Casings to sluice-valves complete... | | | | | | |

N.B.—Describe the sluice-valves, fire-cocks and hydrants, and state if or not the valves, or any portion of them, are to be of gun-metal.

Describe the casings and street fittings in detail.

Furnish diagrams if they have been prepared.

*Details of the Works.*

| Nos. | Headings for a Detailed Description of the Works to be furnished by the Engineer. |
|---|---|
| | *Pumping Works.* |
| 1 | Sort of engine proposed. |
| 2 | Estimated power of engine. |
| 3 | Estimated weight of coal per hour, per h-p. |
| 4 | Volume of water to be lifted. |
| 5 | Head to which water is to be lifted. |
| 6 | Internal diameter of rising main in inches. |
| 7 | Calculated velocity of water in feet per second, through the rising main. |
| | *Impounding and Storage Reservoir.* |
| 1 | Area of gathering ground, in acres. |
| 2 | Average annual depth of rainfall. |
| 3 | Surface area of reservoir when full, in acres. |
| 4 | Greatest depth of water in the reservoir when full, in feet. |
| 5 | Total volume when full, in gallons. |
| 6 | Length of by-wash. |
| 7 | Height of the embankment above top water-level, and top width and thickness of the puddle-wall at bottom and at top. |
| | *Covered Service Reservoir.* |
| 1 | Area of reservoir in square yards. |
| 2 | Depth of water in reservoir when full, in feet. |
| 3 | Volume of water in reservoir when full, in gallons. |

N.B.—Describe in writing the proposed mode of construction of covered reservoirs; as, also, how the reservoir is to be ventilated, lighted, and worked.

It is not desirable to make the pumping main a supply main also, nor should the velocity through any pumping main exceed 2 ft. per second.

The whole of the cast-iron pipes and other castings must be varnished.

There should not be less than 3 ft. in length of by-wash for each 100 acres of gathering ground.

Add any additional details necessary to a full explanation of the proposed works.

Plans and sections, or tracings of them, together with details, must be furnished.

*Summary.*

| Description of Work. | Cost. £ | s. | d. | Total Cost. £ | s. | d. | Remarks. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

Date . (Signed) .

N.B.—This form should be signed by the engineer of the proposed works.

At the inquiry the engineer is called upon to describe and explain the proposed works, and is frequently subjected to a sharp cross-examination upon the details. It is therefore necessary that he should be fully prepared upon every point, and have his notes in such a form as to be ready for reference at a moment's notice. A useful method is to use a note-book with an alphabetical margin, and to arrange the various matters alphabetically. This practice will be found simple and rapid. Another useful practice is to lay down the mains and branches upon a 1 in. ordnance map, indicating the positions of reservoirs, tanks, sluice-valves, hydrants, &c., and distinguishing by means of different colours the ownership of all lands built upon, passed through, or in any way affected by the intended works.

In conclusion we would urge upon the student the necessity for careful thought and preparation before advancing any scheme for water supply. The details comprehended in the profession of a waterworks engineer are innumerable, but upon the full appreciation of these details will depend his success or failure. A small scheme requires, in its way, as much preparation as a large one, and an error in calculation, which in the latter would be insignificant, might be the ruin of the former.

The habits of careful investigation, unerring accuracy, and steady perseverance, combined with a thorough practical knowledge, are qualifications which alone will lead to the execution of those works with which the engineer may afterwards be proud to hear his name associated.

## *GENERAL BUILDING NEWS.*

CONGREGATIONAL CHURCH, CARDIFF.—A new Congregational Church is in course of erection for the members of Roath-road Congregational Church, Cardiff, in Stacey-road. The buildings will face Oakfield-street, and will provide accommodation for over 600 worshippers, with vestries, class-rooms, and a school or hall in the rear. Mr. John Styles, of Canton, Cardiff, was the contractor. The architects were Messrs. T. Waring & Son, of Cardiff.

EXTENSION OF GLASGOW POST OFFICE.—A new building in Ingram-street, Glasgow, have just been completed for the Glasgow Post Office. It is a building of three stories, 120 ft. by 77 ft. Provision is made on the ground floor for additional sorting accommodation, there is a new letter-carriers' sorting department on the first floor, and the top flat will be occupied later on as the telegraph instrument room. One of the first buildings in the city to adopt electric lighting, the current in the post-office is obtained from the city supply station. Owing to the large additional supply of current required in the extended building, the question of laying down the generating plant necessary for the lighting of the whole building was at early stage considered by the Post Office authorities, and the estimates were prepared by Mr. W. H. Preece, C.B., F.R.S., the Engineer-in-chief to the Department, which showed that a large saving would be effected by following that course. The work of carrying out Mr. Preece's specifications has now been completed. The new plant has been erected in the basement of the new block. All the work has been carried out under the supervision of Mr. E. Ashton, superintending engineer of telegraphs for the western district of Scotland. Mr. E. W. Rees was clerk of works.

PROUDFOOT INSTITUTE, MOFFAT, LANARKSHIRE.—On the 19th inst. the Proudfoot Institute, situated in Mansfield-place, Moffat, was opened. The institute consists of on the ground-floor refreshment, smoking, and billiard rooms, with a large recreation hall behind. Upstairs are the reading-hall, library, committee, and game rooms. The building is in the Renaissance style. Mr. Alan B. Crombie, Dumfries, was the architect.

PROPOSED PUBLIC BATHS, GREENOCK.—On the 18th inst., at the meeting of the Greenock Police Board, the Master of Works submitted sketch plans prepared by Mr. Stewart, architect, showing how the site of the vacant ground at 55, 57, and 59, Main-street, extending to over 1,000 square yds., might be utilised for the erection of two swimming-baths and relative adjuncts. He estimated the probable cost of a two-story building, including about twenty private baths and gallery for visitors, at about 7,000*l*. If the building were made only one story and the private baths dispensed with the probable cost would be about 5,500*l*.

EDINBURGH NEW DENTAL HOSPITAL.—The new premises of the Edinburgh Dental Hospital and School in Chambers-street were inaugurated by the Lord Provost recently. The premises have been entirely remodelled internally and fitted up for the work of the hospital and school. In the basement students' cloak-room and lavatories are provided, and a new laboratory has been constructed at the back, with blow-furnace and the various fittings necessary for the mechanical work. The laboratory is 44 ft. long by 22 ft. wide, and is lined with tiles to a height of 6 ft. On the ground floor are the anæsthetic and recovery rooms; also the board and lecture rooms, with professor's cloak-room. On the first floor is the extracting-room and waiting-room for patients; whilst two rooms on this floor are occupied by the Eye Dispensary. In one of these exists some mural decoration, supposed to have been executed during Lord Glenlee's occupation of the house—by a French artist, together with one of the Runcimans, who probably executed the figure work. The festoons and decorative work were executed by the present Mr. Thomas Bonnar's grandfather. The stopping-room occupies the whole of the second floor, which has been converted into one large apartment, the roof being reconstructed to give additional height and top lights, and accommodation being provided for thirty-one operators. Over the back portion of the stopping-room a caretaker's house is provided. The building has been fitted throughout with apparatus for the electric-light, and is heated with hot water, the furnace-room being placed in the basement. There is also telephonic communication from the stopping-room to the laboratory. The whole of the works have been carried out from plans by Messrs. Frank W. Simon & Tweedie, architects, Edinburgh, and have cost about 2,000*l*.

FREE CHURCH, SHERBROOKE, GLASGOW.—The memorial stone of Sherbrooke Free Church has just been laid by Mr. James Campbell, of Tullichewan. The walls are built in low courses of clean-cut rubble, all the dressings being tooled; the roof covered with green Westmoreland slates and red tile ridge. The hall will accommodate 420 persons, the length being 65 ft. by 36 ft. broad, and 40 ft. to ridge. The south gable window is in three divisions, having moulded shafts and carved capitals supporting deeply-moulded tracery. The side windows are three lights in each bay, and all the windows are 8 ft. above the floor. The entrance-porch is at the south-east, the floor being laid with Dumfries red pavement. The seats are of oak, open-backed. The heating is on the low-pressure system. To the north is the vestry, session-room, and church-officer's house. The building will be enclosed with a wrought-iron gate and railing. The total cost, including furnishings, will be about 2,800*l*. The contractors for the building are:—Mason and joiner work, Alexander Eadie & Son, Glasgow; slater-work, J. M'Ouat & Son, Glasgow; plumber-work, William Anderson, Glasgow; plaster-work, Mitchell & Davis, Glasgow; glazier-work, the Scottish National Glass Company. Mr. W. F. M'Gibbon, of Glasgow, was the architect.

COWAN INSTITUTE, PENICUIK, EDINBURGH.—The Institute at Penicuik, erected in terms of a bequest by the late Alexander Cowan, was opened on the 22nd inst. It is built of red freestone from the Moat Quarry, near Carlisle, and is in Scottish baronial style. Covering a total area of 5,320 ft., it includes a hall giving accommodation for 700 persons, a library, gymnasium, billiard-room, chess-room, with retiring-rooms, and janitor's house. It was built to the plans of Mr. Campbell Douglas, Glasgow, under the supervision of Mr. Cavers, Edinburgh, by Mr. James Tait, Penicuik, whilst the wood-work was constructed by Messrs. Cowan & Allan, Glasgow. The estimated cost of the erection was 4,500*l*.

## *SANITARY AND ENGINEERING NEWS.*

SEWERAGE WORKS AT FELIXSTOWE.—The ceremony of turning the first sod in connexion with the main sewerage works for the district of Felixstowe and Walton was performed on the 13th inst. Messrs. Shone & Ault have been the consulting

engineers of the Board, while Mr. G. S. Horton, its Surveyor, has been appointed Engineer of the works. They will be done in contracts. Mr. Fred. Bennett, Ipswich, has secured contract 1. The work will now proceed unhindered.

HEATING AND VENTILATING APPLIANCES, FIFE AND KINROSS ASYLUM.—On the 14th inst., a party of gentlemen left Cupar Station, on the invitation of Mr. William Key, Glasgow, ventilating and heating engineer, to visit the Fife and Kinross Asylum for the purpose of inspecting the ventilating and heating apparatus in connexion with the extensive addition which has just been made to that institution. At the boiler-house (we quote from the *Fife Herald*) are two large boilers, each showing an index of 70 lbs. of steam. These boilers perform the double duty of working the large air-propeller which draws the air into the building, and heating, by means of coils of steam-pipe, the whole air-supply, as well as the water for use in the bath-rooms, &c. Proceeding next to the inlet for the air, which is placed facing the south, it was seen that the entering air passes through an outer warming coil and then through a screen composed of cocoanut fibre. This screen is always kept in a moist condition, and has the effect of cleansing and humidifying the air. By means of an anemometer, Mr. Key then showed that the amount of air propelled into the building was 68,160 cubic ft. a minute, or as much as would renew the atmosphere throughout the entire building ten times an hour. After passing through the screen the air is warmed by coming into contact with coils clustered in batteries within the air-warming chamber. Mr. Key explained that the air passing through this chamber can be reduced in temperature by admitting filtered cold air through by-pass doors made for the purpose—the warm and cold airs mixing while passing through the air propeller. The party next found themselves in one of the main air-ducts, into which the air is directly propelled. On either side of this passage are the openings of flues leading to each room. Secondary warming-coils are placed at the bottom of each flue, so that the air to each room may be warmed to any temperature desired. Several of the rooms were thereafter visited, when it was seen that the volume of air entered so as to be directed to the ceiling, the outlet being only a foot or a foot and a-half from the floor. The whole air in the building being under a slight pressure, no air can enter except by the air-propeller. By means of lighted tapers and a handkerchief placed at the inlets and outlets, Mr. Key showed, to the satisfaction of those present, that there was a continuous stream of air passing through the rooms, without draught. In one of the large day-rooms, which is the very eastmost apartment of the new buildings, and which is 400 ft. from the fan, the passage of air and the temperature were found to be quite equal to those in any other room in the building.

WATERWORKS, TROON, AYR.—On the 20th inst., the ceremony of cutting the first sod on the site of the new reservoir, designed to supply the district and harbour of Troon with gravitation water from the Dundonald Hills, was performed. The reservoir is to be constructed in the glen above the farmsteading of Colennan, and the catchment area extends pretty well across the face of the Dundonald Hills. The works are expected to cost about 12,000*l*. Mr. W. R. Copland, C.E., is the engineer of the works, and the contractor is Mr. Osborne, of Ayr.

REBUILDING OF VAUXHALL BRIDGE.—The London County Council have deposited for next Session the copy of a Bill to empower them to rebuild Vauxhall Bridge upon the site of the existing bridge.—It is proposed that the new bridge be constructed with five openings, the centre span being 155 ft., with a headway of 20 ft. above Trinity high-water. The Bill provides that, prior to the new bridge being commenced, a temporary bridge shall be constructed over the Thames immediately opposite the buildings of the New British Gallery now in course of erection. The time sought within which to complete the new bridge is seven years from the passing of the Act; and for the construction of the whole of the works the Council ask for power to expend 484,000*l*. out of the capital account.

## *FOREIGN AND COLONIAL.*

FRANCE.—The jury of the École des Beaux-Arts have awarded the diploma of architecture to MM. F. Arnaud, Garras, Perraud, Letrosne, Faguer, Hébrard, Proy, Lajoie, and Théophile Leclerc.——M. Uumdenstock, pupil of M. Guadet, has obtained the Saint Agnan-Bourcher prize, awarded to the architectural student of the École des Beaux-Arts who has obtained the largest number of prizes for work sent in.——The committee of the Société des Artistes Français (*i.e.*, the old Salon) has decided, on the report of MM. Dawant and Loviot, to admit examples of applied art and industry into the Champs Elysées Salon.——The members of the Institut have memorialised the Parliamentary Committee in charge of the Budget in favour of the creation of a Museum Fund.——The fine sculptural group by M. Falguière, which figured on the scene at the thousandth representation of "Faust," is to be permanently placed in the museum attached to the Opera-house.——The late M. Saintin, the painter, has left to the École des Beaux-Arts a sum to found an annual prize for the student in painting who has received the largest number of prizes for work sent in during the year.——At a curiosity-shop a fine drawing by Ingres has been discovered, representing a sacred scene.——The Société des Artistes Independants will open its annual exhibition in April next, in the Palais des Arts Libéraux.——M. Guillaume Dubufe is at present completing two allegorical ceiling-paintings and various decorative details for the new Salle à Manger constructed at the Palais de l'Elysée from the designs of M. Chancel.——It is announced that M. Mabelle, the sculptor, whose works attracted great attention at the last Salon—especially the "L'Amour Piqué" which was purchased for the City of Paris, is very ill at the Hospital St. Antoine, and in great poverty.——The casts from the objects found at Delphi by the French School at Athens have been installed at the Louvre, in the old Assyrian Gallery.——A large Hôtel de Ville is to be built at Levallois-Perret.——The jury of the competition opened by the Municipality of Paris for the construction of a new asylum at Ville d'Evrard, have awarded the premiums as follows:—1st premium, M. Morin-Goustiaux; 2nd, M. Dumesnil; 3rd, M. Lebeau; 4th, M. Dauvergne; 5th, MM. Boué and Héraud; 6th, M. Debrie; 7th, M. Albizio; 8th, M. Bourdilliat; 9th, MM. Marcel and Lafon.——The monument which the town of Fontainebleau is to raise on the Place de l'Hôtel de Ville, to the memory of President Carnot, is to consist of a bust on a pedestal surrounded by allegorical figures.——The jury for the competition of a monument to Carnot at Angoulême has awarded the first premium to M. Raoul Verlet. The design comprises a stele supporting a bust of Carnot, towards which a female figure extends a palm and an olive-branch.——The Municipal Council of Paris have authorised the erection, in the Parc Monceau, of a monument to Guy de Maupassant.——Important works in enlargement of the Prefecture at Nice have just been completed. The Prefecture is now connected with the Palais de Justice by a large annexe containing a very fine salle des fêtes in the Renaissance style.——At Royan the construction of a Municipal Casino will shortly be commenced from the designs of M. Redon, a former holder of the prix de Rome.——The Municipality of Blois has opened a competition for the construction of a large covered market in the Place Louis XII.——The death is announced of M. Bassac, city architect at Vanues; and also that of M. Jean Chéry-Laugée, an architectural "expert" adviser in Paris.

FORTHCOMING SWEDISH EXHIBITIONS.—It has now been decided that the Great Industrial and Art Exhibition to be held in Stockholm in 1897, to which we have previously referred, will be located in the so-called "Lion Plain." This plan brings the cost down to 2,056,281 kr. The area is 128,000 square mètres. The receipts being estimated at 1,480,000 kr., a sum of 1,176,281 kr. will have to be found otherwise by the State, the city, &c. For the Industrial Exhibition, to be held next year in Malmö, Herr Wahlin, architect, has designed the *locales*. The main building is T-shaped, the frontage having a length of 123 mètres, and the angle building a depth of 132 mètres. The roof will be pointed, and have a height of 19 mètres, the central portion being crowned with a tower and cupola 46 mètres in height. The area of the Exhibition is estimated at 8,500 square mètres, but 2,000 mètres more can be added.

IMPROVEMENTS IN TENERIFFE.—According to a recent report of the British Consul at Teneriffe, considerable improvements in this island have been commenced, and if the projects in contemplation are carried out, the unrivalled natural attractions of Teneriffe will probably induce many invalids to remain here who have hitherto wintered in Grand Canary, solely on account of the superior hotel accommodation there. The "Pino de Oro" Hotel, within ten minutes' walk of Santa Cruz, commanding a magnificent view, possessing a beautiful garden, and being well out of range of the lower atmosphere, has been opened. Many new buildings with the latest sanitary arrangements are springing up in the suburbs, and waterworks, the electric light, and a refrigerating depot for Australian meat, are likely to be carried out. In Orotava the town and Grand Hotel are lighted by electricity, the motive power for the machinery—Twiss—being from a cascade at the back of the town, and said to be sufficiently powerful to light the whole island.

## *MISCELLANEOUS.*

THE STANLEY-AMSLER PATENT COMPENSATING PLANIMETER.—It is so often necessary to ascertain the area of a portion of ground shown on an Ordnance map or other place that a planimeter has become almost a necessity in the office of an architect or engineer. The best known form is that of J. Amsler-Laffon, the theory of which is so well explained in Minchin's "Uniplanar Kinematics." The instrument is composed of two rods hinged together. The extremity of one of the rods is fixed, and the free end of the other is able to trace out any form of curve, the length of which is only limited by the size of the instrument. As the free end is caused to trace out the boundary of the area required, the revolutions of a graduated roller give a number proportional to the area that has been gone round. It will be seen at once that the accuracy of the apparatus depends on the area being exactly to scale, and should the map or plan have been mounted and shrunk, the readings would no longer give true results. To overcome this difficulty Mr. W. F. Stanley has devised a simple arrangement which insures correct results being obtained, notwithstanding any such shrinkage that might have taken place. A short portion of a continuous scale is placed on the instrument, which is made to read hundredths and sub-divisions of the length of the tracing-arm. Double the percentage of shrinkage of a plan or map gives the number of divisions of the scale engraved on the tracing-arm, to which it is to be set from zero. The planimeter adjusted in this way measures the true area on the shrunk map, if care be taken to follow the outline of the area to be computed with the tracing-point.

CHURCH BUILDING SOCIETY.—The Incorporated Society for Promoting the Enlargement, Building, and Repairing of Churches and Chapels held its monthly meeting on Thursday last week, at the Society's house, 7, Dean's-yard, Westminster Abbey, the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, namely:—Rebuilding St. Michael's Church, Bugaildy, near Knighton, Radnor, 50*l*.; and towards enlarging or otherwise improving the accommodation in the churches at Barlby, near Selby, Yorks, 25*l*.; Canton St. Catherine, near Cardiff, 50*l*.; Orford St. Bartholomew, near Wickham Market, 80*l*.; Penderyn St. Cynog, near Aberdare, 30*l*.; and Saxby St. Helen, near Lincoln, 5*l*. Grants were also made from the Mission Buildings Fund towards building mission churches at Devonport St. Chad, Devon, 20*l*.; and Henshall-with-Heck St. John the Baptist, near Snaith, Yorks, 30*l*. The following grants were also paid for works completed:—Ynysfeid, All Saints, near Pontypridd, 120*l*., on account of a grant of 150*l*.; Gateshead St. Aidan, 150*l*.; Gateshead Holy Trinity, 50*l*.; Levden, near Colchester, 15*l*. on account of a grant of 40*l*.; Wollaston St. Mary-the-Virgin, near Wellingborough, 15*l*.; Bonby St. Andrew, near Barton-on-Humber, 15*l*.; Marden All Saints, near Devizes, 25*l*.; Cogan Pill the Holy Nativity, near Penarth, Glamorgan, 100*l*.; Stoke-in-Teignhead St. Andrew, Devon, 40*l*.; Wesham Christ Church, near Kirkham, Lancashire, 75*l*.; Allendale St. Peter, Northumberland, 25*l*.; Pontyberem St. John, near Llanelly, 100*l*.; and Plaistow St. Martin, Essex, 50*l*. The society likewise accepted the trust of 100*l*. as a repair fund for St. Nicholas Church, Grafton, near Marlborough, Wilts; and 60*l*. for St. Ive, Cornwall. During the present year grants amounting to 3,965*l*. have been made towards building seventeen new churches, thirteen of which are entirely free and unappropriated, rebuilding seven, and the restoration and improvemement of forty-five existing churches. The carrying out of these works has called from the public the sum of 186,126*l*. The sum of 655*l*. has been voted towards twenty-one mission buildings, and 4,865*l*. has been paid for works completed.

COMMISSION OF SEWERS.—Mr. Alderman Bell (the Chairman) presided at a meeting of the Commission of Sewers on the 18th inst., at the Guildhall. The members of the Common Council for Farringdon Without, and the inhabitants of Tudor-street and neighbourhood, presented a petition in favour of the placing of a noiseless pavement in the said street, Tallis-street, Bouverie-street, and Temple-street. On the motion of Mr. Alderman Treloar, seconded by Mr. Turner, and supported by Mr. Pearse Morrison and Mr. Morton, the petition was referred to the Streets Committee. The Court then read a report from the Finance and Improvement Committee relative to the communication from the London County Council as to the widening of Thames-street, and forming a northern approach to Tower Bridge. The committee recommended that it be intimated in reply that the Commission would be prepared to enter into the arrangements suggested by the Improvements Committee of the London County Council—viz., to carry out the City portion of the said approach to Tower Bridge (estimated to cost 63,050*l*.), the London County Council paying half the cost, and paying also one-third of the cost of the said improvement in Thames-street (estimated to cost 37,500*l*. Mr. Wallace, in moving the adoption of the report, said the offer of the Improvements Committee of the London County Council really meant that, instead of the new body carrying out the old acknowledged policy of the payment of half of the cost of such improvements, there would be a loss so far as the City was concerned of about 10,000*l*. It remained with the Court to adopt the report or to reject it, and he wished to remind his colleagues that the northern approach in question was an improvement which was more of a metropolitan character than of a civic nature. The Chairman then put the motion for the adoption of the report, and it was agreed to.

TRADES TRAINING SCHOOL.—On the 20th inst. the certificates gained at the Carpenters' Company's recent examination in sanitary building construction, and the prizes to the successful students at the company's organised science schools and workshops at Stratford, were distributed in the

# COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

## COMPETITION.

| Nature of Work. | By whom Advertised. | Premiums. | Designs to be delivered. |
|---|---|---|---|
| *New Hospital | Co. Tyrone Hospital Committee | 80l. | Jan. 12 |

## CONTRACTS.

| Nature of Work or Materials. | By whom Required. | Architect, Surveyor, or Engineer. | Tenders to be delivered. |
|---|---|---|---|
| *Earthenware Pipes | Belfast Corporation .. | *Official* | Jan. 1'95 |
| Dyehouse, &c. Gladstone Mills, Earlsheaton, Yorks | ..... | F. W. Ridgway | Jan. 2 |
| *Road-Making | Southend-on-Sea Corp. | C. T. Copley | do. |
| Reservoirs, Swan-road | Harrogate Corp. | S. Stead | Jan. 3 |
| Residence, Pen-y-lan, Roath Park, Cardiff | J. W. Hibbert | E. Seward | do. |
| Schools, Llandovery, Wales | ..... | J. H. Phillips | do. |
| Wards, Border Counties Home for Incurables, Carlisle | ..... | G. D. Oliver | Jan. 5 |
| Road Works | Blackpool Corp. | J. Walstenholme | Jan. 7 |
| Street Works | Accrington Corp. | W. J. Newton | do. |
| *Supply of Granite | Beckenham Local Bd. | J. A. Angell | do. |
| Mendip Granite Road Metal | Newbury Corp. | E. A. Stickland | Jan. 8 |
| *Hall Gates Service Reservoir | Leicester Corp. | J. B. Everard | do. |
| *Supply of Materials | Borough of West Ham | L. Angell | do. |
| *Cooking Apparatus, Laundry Fittings, &c. | Borough of Croydon .. | *Official* | do. |
| *Sewerage Works | Barrow - in - Furness Corporation | do. | Jan. 9 |

## CONTRACTS—*Continued.*

| Nature of Work or Materials. | By whom Required. | Architect, Surveyor, or Engineer. | Tenders to be delivered. |
|---|---|---|---|
| *Carting Slops and Sweepings | St. Marylebone Vestry | *Official* | Jan. 10 |
| *Watering Streets | do. | do. | do. |
| *Removal of House Refuse | do. | do. | do. |
| Additions to Doe Royd, Almondbury, Yorks | ..... | John Kirk & Sons | do. |
| Church, Ribchester, Lancs. | ..... | J. A. Seward | Jan. 12 |
| *Waterworks | Skibbereen Union, co. Cork | R. W. Walsh | do. |
| Sewerage Work, High-street | Hastings Corp. | P. H. Palmer | Jan. 14 |
| Schools, St. John's, Penzance | Rev. E. Townsend | Hy. White | do. |
| *Library, Wandsworth Bridge-road | Fulham Public Libraries Commrs. | Billing, Son, & Rowley | Jan. 15 |
| Waterworks, Ferns | Enniscorthy Union | D. Keohler | Jan. 17 |
| *Post Office, Stamford | Com. of H. M. Works | *Official* | Jan. 18 |
| *Extension of Leen Valley Railway | G. N. R. Co. | R. Johnson | Jan. 24 |
| *Scarcroft Board Schools | York School Board | Demaine & Brierley | No date |

## PUBLIC APPOINTMENTS.

| Nature of Appointment. | By whom Advertised. | Salary. | Applications to be in. |
|---|---|---|---|
| *Surveyor and Engineer | Southend-on-Sea Corp. | 300l. &c. | Jan. 15 |
| *Literary and Art Director | Preston Corporation (Library Committee) | ..... | Jan. 16 |

***Those marked with an asterisk (*) are advertised in this Number.*** *Competition, p.* iv. ***Contracts, pp.*** iv., vi., viii. *and* xviii. ***Public Appointments,*** *p.* xvii.

hall of the Carpenters' Company, London-wall, by Sir Albert K. Rollit, M.P. The master of the company, Mr. Niemann Smith, in opening the proceedings, referred to the ancient origin of the Guild, and the efforts they were making in conjunction with the Tylers and Bricklayers', Wheelwrights', Paper Stainers', Plasterers', and Masons' Companies to promote technical education at their institutes at Stratford and in Great Titchfield-street. He was glad to say that their effords had been attended with the most encouraging results. Professor Banister Fletcher also addressed the meeting, remarking upon the thoroughness of the work done by the students. Sir A. K. Rollit, M.P., after the distribution, encouraged the Guild to proceed in their great work and to do something in the matter of original research. He noticed that the Goldsmiths' Company had given a sum of money towards the fund for the discovery of a remedy for diphtheria, and he urged the Carpenter's Guild to do something in the same direction towards narrowing the kingdoms of disease and death. They heard a great deal of the dark ages when the Company was formed, but they were largely indebted to those times for many things, and the City Guilds could do much for the people which individuals could not do for themselves, especially in the matter of laboratories and technical libraries. On the motion of Sir Joseph Frayer, seconded by the Master of the Tylers' Company, a vote of thanks was accorded to Sir A. K. Rollit, and thanks were also voted to the Carpenters' Company before the proceedings closed.

PARTNERSHIP ANNOUNCEMENT.—Mr. Barnes-Williams will take into partnership, from the 1st January, 1895, Mr. Lawton Robert Ford, Fellow of the Surveyors' Institution, and Mr. Alfred Griffin, Professional Associate of the Surveyors' Institution, and the practice will be conducted under the style of Barnes-Williams, Ford, & Griffin.

SANITARY INSPECTORS' ASSOCIATION.—In connexion with the course of Lectures and Demonstrations for Sanitary Officers, arranged by the Sanitary Inspectors' Association, Mr. Edward Tidman, C.E., F.S.I., delivered the second part of his lecture on "Modern House Drainage," at St. James's Hall, Piccadilly, on Saturday last. The lecturer, who again illustrated his observations by numerous diagrams, models, &c., said that probably there was no part of a sanitary inspector's duties that required so much careful thought and attention as the testing of the drains laid or re-laid in his district. He referred to the abandonment by practical men of the old form of pouring oil of peppermint or other strongly perfumed liquid down a closet, but said there were various ways to insert olfactory tests into soil pipes and other fittings in a proper manner. Smoke tests were also useful, but practice had proved they were quite useless to test the hydraulic tightness of drains except very near the surface, and their greatest use was to test the fittings and air-flush. The fault of the majority of forms of smoke machines was that they were too heavy and cumbersome. The water test had come much to the front within the last few years, and it was the only real and absolutely reliable test for drains; its adoption by Local Authorities was a step in the right direction. Young inspectors, however, should be most careful to see that no trick was played upon them by wily, artful builders. The lecturer 'dealt in some detail with the process of water-testing and with the various kinds of plugs which were useful in carrying out the work. Under the head of drain cleansing and flushing he said that most water companies had very stringent regulations with regard to fitting automatic flushing-tanks, and were very particular about the way they were fitted, in some cases so much so that their use was practically prohibited by the cost. In such cases, and, indeed, in all cases, it was best to have a large tank, with large flushing-pipe, discharging at longer intervals, than it was to have a smaller tank discharging at frequent intervals. The object of the flush was to cleanse the pipes and remove sediment and slimy coating in the interior, and this could only be efficiently secured by getting a full bore discharge. He next alluded to a dual system of drainage, than which, he declared, nothing more unsatisfactory and faulty in action could well be conceived. Combined drainage was just now a source of considerable trouble to the authorities, as in so many cases the combined drain was, according to law, a sewer, in which case the authority must make any amendments to, at any rate, a portion of the drainage system at their own cost. In his opinion combined drainage should, as far as possible, be avoided, but in cases of towns with back streets, or where it was desirable not to pass through or under houses, it was permissible. After dealing with subsoil drainage, Mr. Tidman came to the second head of his lecture, "Sewage disposal other than into sewers: sewage treatment at the outfall." This, of course, meant the disposal of sewage of country mansions and other residences, such as country-houses, farms, and perhaps small villages. The plan of sewage treatment he had found most efficient in practice for a country mansion or residence, was to lay on a scheme of drains, as shown on a plan which he exhibited, and running the sewage through them on alternate days. The solid and floating matters were first caught at a tank or cesspool of limited capacity, and removed from time to time. The liquid sewage was conveyed to one-third of the land, which was subsoil drained with 3-in field-pipes about 6 ft. apart, and laid in open joints on ashes or other porous material. The soil was thus not sodden, and the vegetation took up the manurial products by the roots, improving the crop and causing no nuisances. He had heard absolutely no complaint from any owner where this scheme had been adopted, after years of silent, almost automatic action. In further remarks, the lecturer explained and criticised other systems of treatment of sewage at the outfall. A hearty vote of thanks was afterwards accorded to Mr. Tidman. On Jan. 12 Mr. S. G. Fairchild, R.P.C., will deliver the first of two lectures on "Details of Plumbers' Work."

SPRAGUE'S POCKET DIARY FOR ARCHITECTS.—This useful little pocket-book is re-issued for 1895 in its usual form and size, but the memoranda have undergone some revision, which brings it up to date in regard to such points for example as electrical work, in regard to which notes as to the main points in the principles and nomenclature of electrical engineering are compressed into a page, which is an important addition. The strength of iron columns is more scientifically treated than before, and in the matter of iron construction the strength of steel joists is tabulated as well as that of iron. The pocket-book is a very convenient one in size and make-up, and is now materially improved in its contents.

CARDIFF MASTER BUILDERS' ASSOCIATION.—The annual dinner of the Cardiff Builders' Association was held at the Angel Hotel, Cardiff, on the 13th inst. Alderman David Jones, President of the Association, occupied the chair. The company numbered about 80. After the loyal toast had been duly honoured, Mr. J. E. Turner gave the toast of "Architects and Engineers." Mr. Seward, in responding as President of the Cardiff and South Wales Architects' Society, referred to the excellent terms upon which architects and builders worked in Cardiff. This was due in a great measure to the practical and tolerant way in which architects were met by contractors. Mr. Henry Gibbon gave the toast of "The Mayor and Corporation of Cardiff." The Mayor briefly replied. Mr. George David gave the toast of the evening—"The Master Builders' Association"—and in doing so said he observed that disputes were not so frequent in the building as in other trades, and this he attributed to the strength of the builders' organisation. The President, in responding, stated that in eleven years 12,429 new houses had been built in Cardiff, yielding an average number of 1,138 per year. That meant the addition of a considerable village to the town year after year. Cardiff was one of the most progressive places in the country. The President then dealt with competition among builders in tendering for work, and advocated more careful working out of estimates of costs. Mr. Symonds gave "The Town and Trade of Cardiff," to which Mr. F. S. Lock and Mr. W. Morgan responded, and the toasts of "The Visitors" and "The Chairman" concluded the list.

THE CRYSTAL PALACE SCHOOL OF PRACTICAL ENGINEERING.—The annual distribution of certificates to the students of this school took place on the 21st inst. in the school buildings near the southern tower of the Crystal Palace. Mr. J. H. Greathead, C.E., presided. Mr. R. G. Hodson, Superintendent of the Palace School of Art, Science, and Literature read the examiners' reports, which showed that the students now number 100. The Chairman, in the course of an address to the pupils, congratulated them upon the choice they had made of a profession, and said that the occupation of engineering was one in which above all others useful work could be done by those who really had a taste for it. Students in these days had opportunities of attaining proficiency which did not exist when he became an engineer. It was a most useful thing for a young man before going into an engineer's office to get a good grounding in practical work. Every engineer at the present time had to be capable of doing a good variety of work, and must master a great many branches of knowledge. There were great opportunities for engineers who had fitted themselves for undertaking really serious work, and his advice to all those who were starting upon an engineering career was to fit themselves for taking up any work that might come in their way at a later stage. Hard work was the only road to success, which must, in engineering, always depend upon the perfection of details. The certificates having been distributed by the Chairman, Mr. G. T. Rait, on behalf of the Crystal Palace

Company, thanked the examiners for their services, and Mr. S. R. Lowcock, C.E., and Mr. J. N. Shoolbred, C.E., briefly replied. Mr. Shoolbred, in the course of his remarks, drew attention to the development which had taken place in electrical work during the last fifteen years, and said that something like 20,000,000*l.* had been profitably invested in electrical enterprises, excluding telephones and telegraphs, in the United Kingdom, mainly within the last five years, while something like 115,000,000*l.* had been invested in such enterprises on the Continent of Europe. Mr. J. W. Wilson, C.E., Principal of the Engineering School, then made a few remarks to the students, dwelling upon the necessity both of integrity and of application on the part of those who wished to get on in life, and a vote of thanks to the Chairman brought the proceedings to a close.

## *CAPITAL AND LABOUR.*

STATE OF EMPLOYMENT IN NOVEMBER.—Judged by the returns relating to employment received by the Labour Department of the Board of Trade, says the *Labour Gazette*, the slight improvement noticed in the condition of the labour market for September and October has been maintained during the month of November. Sixty-two trade unions, with an aggregate membership of 362,091, have made returns to the Department, showing the total number of unemployed members at the end of November to be 25,178, or 7 per cent., compared with 7·4 per cent. in the fifty-seven unions from which returns were received for October, and 7·2 per cent. in the thirty-two unions making returns for November, 1893. The Steel trade on the whole has remained stationary. Smelters are well employed in most districts, but founders are not so busy, and in some cases are on short time. Employment in the Engineering and kindred trades has somewhat improved during the month, and the percentage of unemployed members of unions connected with these trades has fallen from 9·5 to 8·7 since the end of October. Owing to seasonal causes, some falling off in employment in the various branches of the Building trades is reported, particularly among the Painters. The percentage of unemployed in unions making returns was increased from 3·8 in October to 4·2 in November, which compares with 3·7 in November, 1893. Little change has taken place during the month in the condition of the Furnishing and Woodworking trades. The proportion of unemployed in unions connected with these trades has fallen from 4·6 per cent. in October to 4·5 per cent. in November. In London the Building trades, particularly the carpenters and joiners and the plumbers, show some improvement compared with last month, 152 branches of four unions, with an aggregate membership of 11,166, returning 454 (or 4·0 per cent.) as unemployed, compared with 4·9 per cent. in October and 4·6 per cent. in November, 1893. The Bricklayers report trade as "moderate," the masons, plasterers, and plumbers as "dull," and the painters as "bad."

## *LEGAL.*

### THE LONDON COUNTY COUNCIL AND THE BUILDERS.

ON the 21st inst. Mr. Curtis Bennett, sitting at the West London Police-court, gave his decision in a case of considerable interest to builders, which has been before the courts upwards of two years. In 1892 a building at the corner of Kensington Court, was erected to a height of 70 ft., and after the building had been completed proceedings were taken against the builder for having exceeded the height prescribed by the Act of Parliament, the ground being that Kensington Court was only 45 ft. 7 in. wide, and that it being a road of less width than 50 ft., its width must not be exceeded in the height as a building abutting upon it. For the defence it was stated that the building fronted Kensington-road, the width of which is 90 ft., and that it was by the width of that road that the height must be measured. It was also said that when the present owner acquired the property it consisted of a house in the centre of a terrace. He pulled the old house down, and was proceeding to erect his new building when his neighbour made a new road 45 ft. 7 in. wide by the side of his property. Had that road been 50 ft. in width the owner would then have been entitled to build to the height of 90 ft. It was pointed out that if the County Council's contention was upheld the owner would suffer pecuniary loss through the action of his neighbour. Mr. Horace Avory (instructed by Mr. Chilvers) represented the London County Council. Mr. Dickens, Q.C., defended. In the first instance the summons against the builders was dismissed by the magistrate, but upon the case being taken to the Queen's Bench it was remitted to him to impose a penalty, and the defendants were then ordered to pay 40*s.* a day for the period covered by the summons. As the builders had given up possession of the premises, further proceedings were against the owner. The summons in that case also was dismissed, but the Court of Queen's Bench decided that he was liable for continuing penalties, and referred the case back to the magistrate.

Mr. Avory now asked his worship to impose a substantial penalty for each of the sixty-seven days covered by the summons, in order that it might not be worth the owner's while to continue the offence.

Mr. Curtis Bennett said that he and the judges were all agreed that it was very hard law, and Parliament had evidently come to the same conclusion, for in the new County Council Act the clause had been amended in such a way that when a building was erected on a corner plot, and abutted two streets, its height should be regulated by the wider, so far as it fronted that, and for a distance of 40 ft. along the narrower street. Under the circumstances he thought it sufficient to impose a penalty of 3*s.* a day for the sixty-seven days, with five guineas costs. He added that he had before suggested that this was a case in which some arrangement should have been arrived at, and remarked that it should not be taken that if any further proceedings were instituted he should impose even so high a penalty.

## RECENT PATENTS:

### ABSTRACTS OF SPECIFICATIONS.

21,971.—SASH-LINES, &c.: *H. S. Blake and others*—To retain the sash-line a tube is, according to this patent, fitted in the frame, and a cup to hold the knotted end of the line. A plate with a metal parting-bead fits over the opening in side of frame, which, being removable without taking out the sash or parting-bead, allows ready access to the weights.

22,730.—RUST PREVENTIVE PAINTS: *A. Buscher* (Heidelberg).—In this mixture, designed as a paint to preserve iron or other metal from rusting, finely-divided zinc and calcium carbonate, Tripoli, colothar, vegetable charcoal, &c., are the principal ingredients. It is claimed that after the treatment by this composition iron and steel remain free from rust, and even polish better because during the removal of the paste its polishing ingredients come into action.

22,870.—WINDOWS: *T. M. Houghton.*—This patent applies to windows with sliding sashes—lines and weights, &c.—and is designed to allow the sashes to be opened inward and cleaned or dealt with from the inside of the room. Mechanical methods for effecting this are described in the specification.

23,100.—CHIMNEY POTS: *F. Dye and another.*—To prevent down draught a chimney pot is described having a combination of tube and cylinder placed around the upper end of the chimney pot proper, with a disc or baffle specially arranged in position.

586.—CEILING GIRDERS: *A. A. Chocarne.*—Because plaster does not adhere well to iron, a series of grooves are made upon the surface of the girder so that the plaster shall adhere to the iron as well as to any other cavitied surface.

1,631.—WINDOW AND DOOR PROTECTOR: *W. B. Osborn.*—This is a small protector made with spikes and an inclined plane or wedge-shaped frame, designed to prevent burglars entering.

11,980.—WINDOW-SASHES, &c.: *J. Lakin and another.*—The window-frame is made in the ordinary way, raised and lowered by a cord or lever attached to the window. To prevent dust or draught a hinged shutter is made to accommodate itself to any position the window may be in.

14,273.—DOOR-KNOBS, &c.: *T. P. Stanyon.*—The spindle of the door-knob is a bifurcated one, with a number of transverse grooves. The knob slides on the spindle, and is secured at any point by means of a key passing through the groove and spindle and secured by a screw in the neck of the knob passing through it.

#### NEW APPLICATIONS FOR LETTERS PATENT.

DECEMBER 10.—23,966, D. McNish, Bath Lavatory Basin.—24,000, E. Benninghoven, Hand-saws and other Cutting Tools.—24,011, E. Cowcher, Screws.

DECEMBER 11.—24,030, S. Trawley, Sash-fasteners.—24,056, J. Barnet, Adjustable Level, or Inclined Floor.—24,077, F. Richards, Fastenings for Door-knobs, &c.—24,093, G. Church and G. Ettenger, Joints and Connexions for Metallic Tubular Structures, such as are used for the under-frames of girders and frames for bridges and buildings.

DECEMBER 12.—24,139, J. Bromilow, Utilising Slag and Coal Ashes to Produce Substitutes for Brick, Stone, and Concrete.—24,165, A. Buckland, Securing Doors.—24,171, W. Youlten, Weather Checks.

DECEMBER 13.—24,230, R. Taylor and J. Green, Gully-Traps and Gratings.

DECEMBER 14—24,304, J. Donnelly, Strengthening the Sliding-sashes of Windows.—24,[illegible]9, F. Myerson and T. Lane, Pots, Tops, or Cowls for Chimneys or Ventilating-shafts.—24,346, E. Sherman, Draught Excluders.—24,382, L. Janlit, Flushing-tanks.—24,383, L. Janlit, Automatic Flush-tanks.

DECEMBER 15.—24,428, A. Smith, Stoves or Fireplaces.—24,435, H. Kühn, Door-closer with Automatic Lubricator.—24,436, J. Eastham, Sash Fastener.

#### PROVISIONAL SPECIFICATIONS ACCEPTED.

21,384, C. Mannon, Portable Door Fasteners.—22,152, D. Arnot, Windows.—22,260, R. Evans, Manufacture of Size.—22,632, H. Lake, Fastenings for Doors.—22,674, R. Deam, Flushing Cisterns for Water-closets.—22,816, W. Bailey, Flushing Cisterns.—22,916, A. Clare, Mounting Grindstones.—23,063, E. Hallam, Fireplates, Stoves, &c. 23,107, W. and J. Elliott, Firegrates or Stoves.—23,151, W. Taylor, Window-sashes.—23,382, J. and W. Starley, Tread Surfaces applicable to Steps, Stairs, Gangways, &c.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*(Open to Opposition for Two Months.)*

167, J. Bell, Water Waste Preventer.—3,287, J. Spencer, Domestic Stoves or Fireplaces.—3,708, J. Mair, Window Sashes.—15,755, J. Elliott, a Stone Composition for repairing any Natural Stone and refacing Cement Floors, Steps, &c., also for making Imitation Stone and Bricks, of any colour.—18,671, V. Lennard, Disinfecting Apparatus for use in Water-closets, Urinals, Lavatories, &c.—21,654, W. Wheeler, Syphon Flushing Cistern.—21,904, S. Smith, Gates

## MEETINGS.

THURSDAY, JANUARY 3.

*Civil and Mechanical Engineers' Society.*—Mr. A. W. Ackermann on "Caissons and Dock Gates." 7 p.m.

FRIDAY, JANUARY 4.

*Architectural Association.*—Mr. C. G. Harper on "Architectural Illustration." 7.30 p.m.

## PRICES CURRENT OF MATERIALS.

| TIMBER. | | |
|---|---|---|
| Greenheart, B.G. ton | 8/0/0 | 9/0/0 |
| Teak, E.I. ...load | 20/0/0 | 25/0/0 |
| Sequeia, U.S.ft.cu | 1/10 | 0/2 |
| Ash, Canada load | 3/0/0 | 4/5/0 |
| Birch, do. ..... | 3/0/0 | 4 5/0 |
| Elm, do. ..... | 3 15/0 | 5 0/0 |
| Fir, Dantsic, &c. | 2/10/0 | 3 0/0 |
| Oak, do. ..... | 2/15/0 | 4/15/0 |
| Canada ..... | 3 5/0 | 6/15/0 |
| Pine, Canada red | 2/15/0 | 3 5/0 |
| Do. Yellow .... | 3/10/0 | 5/15/0 |
| Lath, Dantsic, fath | 4/10/0 | 5/10/0 |
| St. Petersburg.. | 5/0/0 | 6/10/0 |
| Wainscot, Riga, &c., log ..... | 2/15/0 | 5/0/0 |
| Odessa, crown.... | 2/15/0 | 5 0/0 |
| Deals, Finland 2nd & 1st std 100 | 7/0/0 | 9/0/0 |
| Do. 4th & 3rd .. | 7/0/0 | 8/0/0 |
| Do. Riga ..... | 7/0/0 | 8/10/0 |
| St. Petersburg, 1st yellow .... | 9/10/0 | 12/0/0 |
| Do. 2nd yellow | 7/10/0 | 9/0/0 |
| Do. white ..... | 8/0/0 | 10/10/0 |
| Swedish..... | 7/0/0 | 15 10/0 |
| White Sea..... | 6/10/0 | 14 0/0 |
| Canada, Pine 1st | 21/0/0 | 24 10/0 |
| Do. do. 2nd.... | 16 12/0 | 17 12/0 |
| Do. do. 3rd, &c. | 7/10/0 | 10/10/0 |
| Do. Spruce, 1st | 8/10/0 | 10/0/0 |
| Do. do. 3rd & 2nd ..... | 6/10/0 | 7/10/0 |
| New Brunswick | 6/0/0 | 7/0/0 |
| Battens, all kinds | 5 0/0 | 24/0/0 |
| Flooring boards, 1½, 1 in. prep. 1st ..... | 0/9/6 | 0/14 0 |
| Do. 2nd..... | 0/7/0 | 0/12/6 |
| Other qualities— | 0/5/0 | 0 7/0 |
| Cedar, Cuba ..ft. | /3 | /4 |
| Honduras, &c. | /3 | /4½ |
| Mahogany, Cuba | /3 | /8 |
| St. Domingo, cargo av. | /3 | 1/6 |
| Mexican do. do. | /3 | /4 |
| Tobasco do. do. | /3 | /6 |
| Honduras do. .. | /3½ | /5½ |
| Box, Turkey ton | 4/0/0 | 13/0/0 |
| Rose, Rio..... | 7/0/0 | 18/0/0 |
| Bahia ..... | 6/0/0 | 17/0/0 |
| Satin, St. Domingo..... | 0/0/5 | 0/1/0 |

| TIMBER (*continued*). | | |
|---|---|---|
| Satin, Porto Rico | 0/0/6 | 0/1/8 |
| Walnut, Italian .. | 0/0/3½ | 0/0/7 |

| METALS. | | |
|---|---|---|
| Iron—Pig, in Scotland .....ton | 2/11/1 | 0/0/0 |
| Bar, Welsh, in London ..... | 5/12/6 | 5/15/0 |
| Do. do. at works in Wales..... | 5/2/6 | 5/5/0 |
| Do. Staffordshire, in London..... | 6/0/0 | 6/12/0 |
| COPPER—British cake and ingot | 43 0/0 | 43/5/0 |
| Best selected .. | 43/15/0 | 44 5/0 |
| Sheets, strong .. | 51/10/0 | 0 0/0 |
| Chili, bars ..... | 41/2 6 | 41/7 6 |
| YELLOW METAL lb | 0/0/4½ | 0/0/4½ |
| LEAD—Pig, Spanish.....ton | 9/11/3 | 9/12 6 |
| English com. brands..... | 9/12 6 | 9/13/9 |
| Sheet, English, 6 lbs. per sq. ft. and upwards .... | 10/15/0 | 11 0/0 |
| Pipe..... | 12/15/0 | 0/0/0 |
| ZINC—English sheet.....ton | 18/10/0 | 19/0/0 |
| Vieille Montagne ..... | 19/10/0 | 0/0/0 |
| TIN—Straits..... | 62/15/0 | 63 5/0 |
| Australian ..... | 63/0/0 | 63 10/0 |
| English Ingots.. | 65/10/0 | 66 12/0 |
| Banca ..... | 65/0/0 | 65/10/0 |
| Billiton ..... | 64 0/0 | 64 10 0 |

| OILS. | | |
|---|---|---|
| Linseed .....ton | 19/17/6 | 20/5/0 |
| Cocoanut, Cochin | 26/10/0 | 0/0/0 |
| Do. Ceylon ..... | 24 10/0 | 0/0/0 |
| Palm, Lagos..... | 25/0/0 | 0/0/0 |
| Rapeseed, English pale ..... | 21/0 0 | 0/0/0 |
| Do. brown..... | 19/7 6 | 19 10/0 |
| Cottonseed ref.... | 17/15 0 | 18 10/0 |
| Oleine ..... | 21/10/0 | 24/0/0 |
| Lubricating, U.S. | 4/0/0 | 5/0/0 |
| Do. refined ..... | 5/0/0 | 12/0/0 |
| TAR—Stockholm barrel | 1 1/0 | 0 0 0 |
| Archangel ..... | 0 13/0 | 0 0 0 |

## TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursday.*]

ABERDARE.—For the erection of thirty-three dwelling-houses, Gadlys. Mr. C. H. Elford, architect, 34, Cannon-street, Aberdare:—

| | | | |
|---|---|---|---|
| Thomas Richards .....£178 | 15 | R. A. Davies .....£137 | 12 |
| Emanuel Cross ..... 166 | 0 | David McCarthy, Pontypridd* ..... 130 | 0 |
| John Rees ..... 150 | 0 | | |
| Samuel Hawkins..... 148 | 0 | | |

* Accepted.

[Bricks found by proprietor and not included in these prices.]

ABERDEEN.—For the construction of pipe-sewers, with ventilating manholes, &c., Bonnymuir and Hosefield, for the Town Council. Mr. W. Dyack, Burgh Surveyor, Town House, Aberdeen:—

R. McKay, Aberdeen .....£320 18 10

BARRY DOCK (Glam.).—For additions to school buildings, Holton-road, for the U.D. School Board. Mr. George Thomas, architect, Queen's-chambers, Cardiff. Quantities by the architect:—

| | | | |
|---|---|---|---|
| H. Gibbon.....£3,377 | 12 0 | E. F. Richards.....£2,834 | 10 0 |
| W. Symonds..... 3,290 | 0 0 | E. R. Evans & Bros. 2,806 | 3 4 |
| H. Davies ..... 3,173 | 0 0 | Geo. Rutter, Barry* 2,777 | 0 0 |
| Lloyd & Tape..... 3,109 | 0 0 | F. Small† ..... 2,522 | 0 0 |
| D. Davies ..... 2,915 | 0 0 | | |

* Accepted. † Withdrawn.

BURE (Hants).—For building new shooting-box at Bure Farm, near Christchurch, for Major Stuart Wortley. Messrs. Lawson & Donkin, architects, Bournemouth:—

| | | | |
|---|---|---|---|
| F. J. Luxton.....£2,134 | 5 9 | J. W. Lucas .....£1,789 | 0 0 |
| Entwistle & Cox.... 1,900 | 0 0 | Wm. Hoare ..... 1,687 | 0 0 |
| George & Harding . 1,934 | 0 0 | W. J. Chinchen, East Cliff Works, Bournemouth* .. 1,600 | 0 0 |
| Frampton & Sons .. 1,900 | 0 0 | | |
| McWilliam & Son .. 1 890 | 0 0 | | |
| Jenkins & Son..... 1,862 | 0 0 | | |

* Accepted.

COLERAINE (Ireland).—Accepted for the construction of water and sewerage works, Portstewart, for the Union Guardians:—

M. Green, 244, York-street, Belfast .....£2,309 2 11

LONDON.—For additions to wards at the Union House, Plumstead, for the Union Guardians. Mr J. O. Cook, architect, 1, Eleanor-road, Woolwich. Quantities by Mr. C. W. Brooks, 63, Finsbury Pavement, E.C.:—

| | | | |
|---|---|---|---|
| Chinchen .....£1,160 | | J. Otway .....£1,037 | |
| Hodgin ..... 1,110 | | W. Neil ..... 1,035 | |
| W. Martin..... ..... 1,098 | | C. Kitley ..... 994 | |
| E. Proctor..... ..... 1,092 | | G. Munday & Son ..... 993 | |
| T. White & Sons ..... 1,083 | | W. Collinson ..... 984 | |
| Williams & Sons..... 1,050 | | W. Pavey ..... 955 | |
| Mutton & Wallis..... 1,049 | | T. J. Burden, Maidstone* 940 | |

* Accepted.

LONDON.—For new road and surface drainage, Ransom's Dock, Battersea, S.W.:—

B. Cooke & Co. .....£250

PEMBROKE (South Wales).—For additional class-rooms, &c., to school buildings, East End, Pembroke, for the School Board of the Borough of Pembroke. Mr. John E. P. Ladd, architect, Main-street, Pembroke:—

| | | | |
|---|---|---|---|
| J. R. Thomas .....£694 | 16 | Davis & Morgans, Pembroke (accepted) .....£575 | 0 |
| C. Young ..... 647 | 0 | | |

RAWMARSH (Yorks.).—For the construction of two new streets, Rycroft, for the Local Board. Mr. J. W. Wetherill, Surveyor to the Board:—

*South-street.*

| | | | |
|---|---|---|---|
| R. Morton ..... ....£398 | 15 0½ | B. Bool, Parkgate* ..£385 | 6 10 |

*Main-street*

| | | | |
|---|---|---|---|
| R. Morton ..... 377 | 18 1 | B. Bool, Parkgate* .. 371 | 8 10 |

* Accepted.

ST. ALBANS.—For re-arranging the sewage-disposal works, Wheathampstead, for the Rural Sanitary Authority. Mr. T. Foster Woodman, F.S.I.:—

| | | | |
|---|---|---|---|
| *Ground Work.*—O. Odell.....£123 | 0 0 | | |
| " Sparrow & Son, Harpenden* ..... 58 | 10 0 | | |
| *Pumping Gear.*—A. H. Mutton, Hemel Hempstead*.... 42 | 12 6 | | |

* Accepted.

ST. ALBANS.—For house and stabling for Mr. J. Fraser, St. Albans:—

| | | | |
|---|---|---|---|
| Bushell .....£2,275 | | Whibley & Jervis, St. Albans* .....£1,8 | |
| Miskin ..... 2,275 | | | |
| Dunham..... 2,015 | | | |

* Accepted.

LONDON.—For broken granite and granite spalls, 1895-98, for the Vestry of Paddington. Mr. George Weston, Surveyor:—

| | Broken Granite. Price per Cubic Yard. | Broken Granite. Price per Ton. | Granite Lumps. Price per Ton. |
|---|---|---|---|
| | s. d. | s. d. | s. d. |
| *Barden Hill.* | | | |
| Ellis & Everard, delivered at Kilburn, or Queen's Park, Railway Depots | Not priced. | 10 3 | 8 6 |
| Whitwick Granite Co., Ltd. (any railway depot in London) (from Whitwick Quarries) | 10 6 | 10 0 | 8 4 |
| *Basalt.* | | | |
| J. L. Lyon & Co., delivered at side of Parish Wharves | 14 6 | 12 1 | Not priced. |
| *Belgian.* | | | |
| L. Sommerfeld, delivered at side of Parish Wharves | 13 6 | Not priced. | do. |
| *Bierghes.* | | | |
| Kaltenbach & Schmitz, delivered at side of Parish Wharves | 13 0 | do. | do. |
| *Clee Hill.* | | | |
| Clee Hill Dhu Stone Co., delivered at Paddington, Queen's Park, or Kilburn Railway Depots. | 16 11 | do. | 11 8 |
| *Enderby.* | | | |
| A. & F. Manuelle, delivered at Kilburn Railway Depot | 13 8 | do. | Not priced. |
| Narborough & Enderby Granite Quarries Co. (name of railway depot not stated) | 14 0 | 12 9 | do. |
| Nowell & Robson, delivered at Kilburn or Queen's Park Railway Depots | 13 6 | 12 4 | 10 3 |
| Rawson & Rawson, delivered at Paddington or Kilburn Railway Depots | Not priced. | 10 6 | 9 3 |
| Tildesley, Shepherd, & Mabson, delivered at Kilburn or Queen's Park Railway Depots | 13 3 | 12 0 | 9 9 |
| S. Trickett & Sons, delivered at Kilburn Railway Depot | 13 8 | Not priced. | Not priced. |
| G. Wimpey & Co. (name of railway depot not stated) | 14 2 | 12 10 | do. |
| *Guernsey.* | | | |
| R. L. & J. Fennings, delivered at side of Parish Wharves | 19 2 | 15 10 | 11 1 |
| W. & J. R. Freeman, " " " | 18 7 | 15 0 | 11 0 |
| W. Griffiths, " " " | 18 10 | 15 6 | 10 9 |
| A. & F. Manuelle,* " " " | 18 0 | 14 7 | 10 4 |
| J. Mowlem & Co., " " " | 18 8 | 15 0 | 10 6 |
| W. Muir & Co., " " " | 18 0 | 15 4 | Not priced. |
| Nowell & Robson, " " " | 18 5 | 15 0 | 10 8 |
| L. Sommerfeld, " " " (quarried in Alderney) | 17 5 | 14 7 | 10 5 |
| S. Trickett & Sons, " " " | 19 0 | 15 11 | 10 11 |
| *Hart's Hill.* | | | |
| H. N. Tyre, delivered at side of Parish Wharves | 13 6 | 10 0 | 8 6 |
| " delivered at Kilburn or Paddington Railway Depots | 11 6 | 10 0 | 8 6 |
| *Markfield.* | | | |
| Van Praagh & Co., delivered at Kilburn Railway Depot (from Cliffe Hill Quarries) | Not priced. | 12 0 | 9 6 |
| *Narborough.* | | | |
| A. & F. Manuelle, delivered at Kilburn Railway Depot | 14 5 | Not priced. | Not priced. |
| Narborough and Enderby Granite Quarries Co. (name of Railway Depot not stated) | 14 9 | 13 5 | " |
| Nowell & Robson (name of Railway Depot not stated) | 14 3 | 13 1 | 10 3 |
| Tildesley, Shepherd, & Mabson,* delivered at Kilburn or Queen's Park Railway Depots | 14 0 | 12 9 | 10 0 |
| S. Trickett & Sons, delivered at Kilburn Railway Depot | 14 5 | Not priced. | Not priced. |
| G. Wimpey & Co. (name of Railway Depot not stated) | 14 7 | 13 3 | " |
| *Quenast.* | | | |
| C. M. Manuelle, delivered at side of Parish Wharves* | 14 6 | 12 4 | " |

CONTRACT PRICES, 1894-95.

| | | | |
|---|---|---|---|
| *Narborough.* | | | |
| Tildesley, Shepherd, & Mabson, delivered at Kilburn Railway Depot | 14 0 | — | — |
| *Guernsey.* | | | |
| A. & F. Manuelle, delivered at side of Parish Wharves | 18 7 | — | — |

* Accepted.

WAKEFIELD.—Accepted for the construction of drainage works, West Ardsley, for the Union Rural Sanitary Authority. Mr. Frank Massie, C.E., Tetley House, Kirkgate, Wakefield:—

*West Ardsley Contract, No. 4.*

H. Barraclough, Brighouse ..... £438 19 10

*Altverthorpe Drainage Contract, No. 2.*

T. & G. Wilson, Wakefield ..... £707 4 2

*Inspector's House, Outwood, near Wakefield.*

*Excavating, Bricklaying, and Masonry.*—W. Richardson, Outwood ..... £500 6 11
*Joinery and Carpentry.*—W. Richardson, Outwood .... 126 14 3
*Plumbing, Painting, and Gas-fitting.*—G. A. Beaumont, Lofthouse Gate, near Wakefield ..... 30 10 0
*Plastering.*—W. Hesling, Outwood ..... 27 9 1
*Slating.*—Pickles Bros., Leeds ..... 54 6 0

WEST MOORS (Dorset).—For the erection of a house for the curate, for the Vicar of Verwood. Messrs. Adye & Adye, architects, Town Hall-chambers, Bradford-on-Avon:

| | | | |
|---|---|---|---|
| W. Griffin | £3,943 0 | A. E. Bigwood & Co. | £3,369 0 |
| Webb & Co. | 3,873 0 | Geo. Moore | 3,342 5 |
| Merrick & Son | 3,852 0 | Lindsay & Francis | 3,173 0 |
| Mould Bros. | 3,679 0 | Hayward & Wooster, Bath* | 3,090 0 |
| Burt & Vich | 3,672 0 | Robt. Ellock | 2,945 0 |
| W. E. Alexander | 3,672 0 | Wm. King | 2,392 0 |
| H. Barrow | 3,433 0 | * Accepted. | |
| Jenkins & Son | 3,393 0 | | |

WHITCHURCH (Shropshire).—Accepted for the erection of a house in the Daddington-road, for the Trustees of the late Mr. W. T. Lamb. Mr. Frank E. Smee, architect, 12, West Smithfield, E.C. Quantities by Messrs. Goodchild & Son, 81, Finsbury-pavement, E.C.:—

George Dodd, Whitchurch (no competition) ..... £800


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6 and 8, HATTON GARDEN.

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47 and 49, ST. ENOCH-SQUARE.